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REFERENCES AND ABBREVIATIONS

Readers in search of a given subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral, Heart and Cardiac, Liver and Hepatic, Child and Infant, Goitre and Thyroid, Diabetes, Glycosuria and Sugar, Eye, Ophthalmic, and Vision, Lunacy and Mental Disease, Arsenobenzol and Salvarsan, &c., &c., and that regional headings are more frequently used than pathological. Institutions and Corporations with the right to the prefix Royal will be found under that prefix, with the exception of Hospitals, which will be found under that heading; and Medical Societies, which are separately indexed under Societies. All Universities are indexed under the word University. (A.) = Annotation, (C.) = Correspondence, (N.I.) = New Inventions, (L.A.) = Leading Article, (M.L.) = Medico-legal, (M.T.T.) = Modern Technique in Treatment, (O.) = Obituary, (P.I.) = Parliamentary Intelligence, (R.) = Review, and (R. and A.R.) = Reports and Analytical Records.

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An Address
ON
VISCEROPTOSIS.

A Contribution to the Discussion at the Meeting of the Association of Surgeons at Glasgow on May 5th, 1927,

BY A. J. WALTON, M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE LONDON HOSPITAL.

WITH the spread of civilisation and the improvement in medical knowledge and surgical technique certain diseases tend to disappear, but there are others which are found with increasing frequency and which, indeed, appear to be directly dependent upon the conditions of civilised life. Such a disease is that curious group of symptoms and pathological changes which is spoken of as "visceroptosis"—a name admittedly incomplete, as it only describes one of the many changes. Some 20 or 30 years ago these patients were rarely seen, but to-day they form a large and important section of any abdominal clinic; important in that their symptoms closely resemble those of recognised organic lesions, and that preventive and curative treatment leaves at present much to be desired.

To a certain extent the changes are unquestionably hereditary, and are thus becoming more common in so far as civilisation permits the survival of those who are partly unfit; but in order to obtain the means to preserve the unfit, civilisation demands harder work on the part of the fit, so that they, and especially those on the border-line, are in turn rapidly becoming unfit. In fact, the burden of keeping the unfit is becoming more than the fit can bear. Thus, in ptotic patients environment plays a considerable part in that the stress of life under modern conditions is responsible, especially in women, for many of the changes, and it is, as I hope to show, the combination of the congenital and acquired faults which causes the characteristic symptoms. The pathological changes are widespread, and it is only of recent years that they have been recognised as part of one disease. It will be convenient for descriptive purposes to consider them under the following heads: abnormal mobility and dilatation of the intestines; the presence of accessory membranes; changes in the body structure; altered mentality.

ABNORMAL MOBILITY AND DILATATION OF INTESTINES.

Every case presenting the characteristic symptoms of visceroptosis will, on physical examination or on X ray investigation, show an abnormal mobility of some part of the intestinal tract, but the investigation of this factor is one which is associated with considerable difficulty. There is no true standard of the position and mobility of the portions of the intestinal tract, and it has been shown by many observers that there is a considerable variation in these respects without the presence of any abnormal symptoms. This is especially so in females. McConnell and Hardman, for instance, found that in a series of apparently normal individuals the cæcum and ascending colon were considerably lower in females than in males, but there was also a considerable variation in different individuals. Quain examined 25 nurses with the X rays who had normal gastro-intestinal function; more than half of them had an abnormally low right colon; in two who had never had constipation the hepatic flexure was near the anterior superior spine. But although all persons who have prolapsed stomachs and colons, as found by X ray examination, may not have symptoms, all those who have symptoms are found to have prolapsed and dilated stomachs and colons. The liver is prolapsed, being rotated down to the right rather than directly dropped. The kidneys, and especially the right, are abnormally mobile and frequently dropped. In women the uterus is nearly always retroverted and is frequently prolapsed. The abnormal mobility of the large intestine is in nearly all cases associated with the presence of a mesentery in those areas which normally should have no posterior peritoneal covering. For instance, the duodenum and the cæcum can often be freely withdrawn from an abdominal wound owing to the presence of such a mesentery.

Abnormal dilatation of portions of the intestinal tract is of considerable interest. All cases of true ptosis show dilatation of the stomach or intestine, but unless there is some additional obstructive factor there is never any hypertrophy of the muscular wall. Many adults of both sexes who have reached middle age and are overworked show atony and dilatation of portions of the intestine or of the stomach which causes an acquired ptosis, but such conditions are usually temporary and react well to treatment, so that it is doubtful if they should be regarded as cases of ptosis. Barclay has laid special stress on this point in his X ray investigations of the stomach, and draws a sharp line of distinction between acquired atony and true ptosis. Of greater interest are some of the rarer forms of pronounced dilatation of the intestine. Wilkie has drawn attention to the extreme degrees of atonic dilatation of the duodenum which he has designated as duodenal ileus, and has shown how it is frequently associated with visceroptosis, although personally I believe his view that it is due to compression of the duodenum by the drag of the mesentery is incorrect, and that the dilatation is atonic and is part of the general atony of ptosis. Occasionally cases are seen of extreme dilatation of portions of the large intestine in relatively young people who may complain of constipation alone or of attacks of colicky pain, and it becomes difficult to say whether they should be regarded as advanced degrees of ptosis or mild varieties of Hirschsprung's disease. Such a case is represented in the X rays (Figs. 1 and 2). Probably we shall find in the future that there is no very marked difference between the changes found in ptosis and those of idiopathic dilatation of the colon, and that the attacks of severe pain in the former condition may be due to muscular spasm of a similar nature but in a different situation from that causing the changes of Hirschsprung's disease. It is notable, however, that the dilated portions of the intestine practically never show any hypertrophy, and this, even when there appears to be a definite obstruction. Thus, in my experience, in duodenal ileus the wall is never thickened, as would be expected with obstruction from the mesentery, and the colon in this respect shows a clear distinction from that of Hirschsprung's disease.

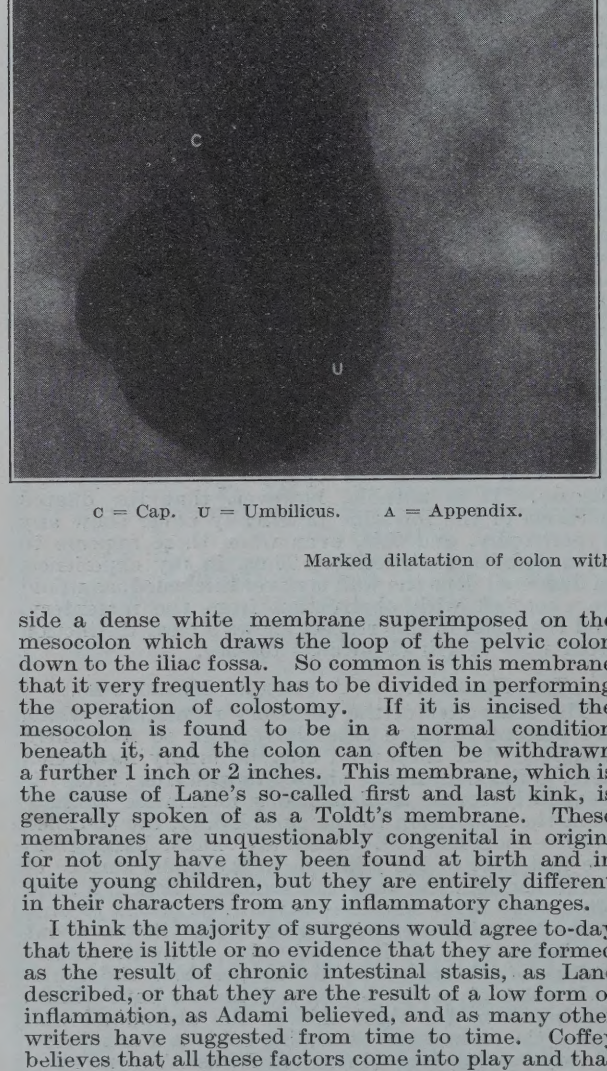
THE PRESENCE OF ACCESSORY MEMBRANES.

The characters of the accessory membranes which are present in these cases have been so frequently described that they need only be briefly mentioned here. Passing from above downwards there is frequently found a filamentous membrane running from the duodenum to the gall-bladder, the so-called cystico-duodenal fold. There are similar bands from the first part of the jejunum to the under surface of the mesocolon, the mesocolic bands. There is a band often more dense and fibrous than the others passing from the antimesenteric border of the ileum, about 2–6 inches from the ileocæcal valve, along the under-surface of the mesentery to the posterior abdominal wall which gives rise to the well-known Lane's kink. Passing from the right side of the abdominal wall across the cæcum and ascending colon is a membrane of very varying degree known as Jackson's membrane. In the less advanced cases it is present only as a small band across the cæcum and involving an atrophic appendix, while in the more advanced degrees it forms a wide curtain, often continuous above with the gall-bladder and hepatic flexure, when it is known as the cystico- or hepatico-colic fold. In the middle portion it runs right over the ascending colon, and may even fuse this portion of the intestine with the commencement of the transverse colon, in which case

it is clearly a continuation of the great omentum, while below it enfolds the cæcum in a thin and voluminous bag. Similar membranes are found at the splenic flexure running from the termination of the transverse colon to the commencement of the descending colon, so that these two portions of the intestine lie parallel and are fixed above to the spleen, these membranes being spoken of as Payr's membranes. In the loop of the pelvic colon there is on the outer side a dense white membrane superimposed on the mesocolon which draws the loop of the pelvic colon down to the iliac fossa. So common is this membrane that it very frequently has to be divided in performing the operation of colostomy. If it is incised the mesocolon is found to be in a normal condition beneath it, and the colon can often be withdrawn a further 1 inch or 2 inches. This membrane, which is the cause of Lane's so-called first and last kink, is generally spoken of as a Toldt's membrane. These membranes are unquestionably congenital in origin, for not only have they been found at birth and in quite young children, but they are entirely different in their characters from any inflammatory changes.

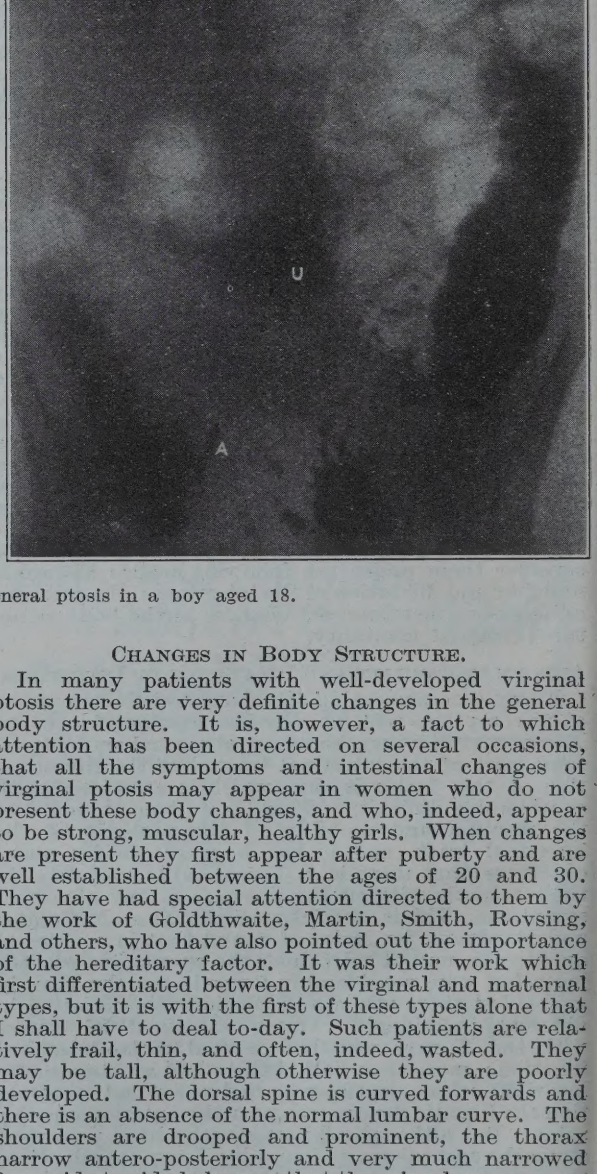
I think the majority of surgeons would agree to-day that there is little or no evidence that they are formed as the result of chronic intestinal stasis, as Lane described, or that they are the result of a low form of inflammation, as Adami believed, and as many other writers have suggested from time to time. Coffey believes that all these factors come into play and that some of the membranes are congenital and represent anomalous fœtal developments, whereas others are inflammatory and the widespread membranes arise as Lane has described. My own experience has strongly favoured the view of their congenital origin, for it will be seen that among my cases which have been subjected to operation 22 were young people under the age of 20, in whom these acquired factors could hardly have been at work. Some degree of accessory membrane formation is extremely common, and in fact in over 50 per cent. of women they may be found in some form or other. It is only when they are present to an excessive degree that they can be regarded as pathological. It is also becoming evident as one is gaining wider experience that there is a definite hereditary factor in these cases, a high percentage of girls with virginal ptosis having mothers who have suffered from the same condition.

FIG. 1.



C = Cap. U = Umbilicus. A = Appendix.

FIG. 2.



Marked dilatation of colon with general ptosis in a boy aged 18.

CHANGES IN BODY STRUCTURE.

In many patients with well-developed virginal ptosis there are very definite changes in the general body structure. It is, however, a fact to which attention has been directed on several occasions, that all the symptoms and intestinal changes of virginal ptosis may appear in women who do not present these body changes, and who, indeed, appear to be strong, muscular, healthy girls. When changes are present they first appear after puberty and are well established between the ages of 20 and 30. They have had special attention directed to them by the work of Goldthwaite, Martin, Smith, Rovsing, and others, who have also pointed out the importance of the hereditary factor. It was their work which first differentiated between the virginal and maternal types, but it is with the first of these types alone that I shall have to deal to-day. Such patients are relatively frail, thin, and often, indeed, wasted. They may be tall, although otherwise they are poorly developed. The dorsal spine is curved forwards and there is an absence of the normal lumbar curve. The shoulders are drooped and prominent, the thorax narrow antero-posteriorly and very much narrowed from side to side below, so that there is a long, narrow, epigastric angle. When standing erect the upper abdomen is flattened and the lower protruberant and flabby. The narrowness of the abdomen and the lower thorax gives a curious picture, as though the patient had a pelvis which was too big for her body. It is

also the narrowing of the lower thorax which to a large extent gives rise to the displacement of the abdominal viscera, for in a well-established case it is evident that the viscera could not be replaced owing to this narrowness. In addition to this, there is very often general muscular weakness, and there may be a certain amount of genu valgum or flat-foot.

With such a body-change the hereditary influence is often strongly in evidence. Briggs has worked out a series of 128 members of 23 families all descended from a veteran of the American Civil War. Of the 128 members, 64 were affected with ptosis, thus agreeing with the Mendelian principles. Rovsing has shown, however, that similar changes may be due to external interference with normal development, which will not begin to be active until after the onset of puberty. The fact that some patients with symptoms of visceroptosis do not show these changes, but are well-developed, muscular girls, while others show a marked "ptosis habitus" was for a time difficult to understand, but has been made clear by Sherrington's work, which has shown that voluntary muscular movements are quite distinct from those of postural activity, and may indeed possibly be carried out by separate muscular fibres. Thus it is that patients who have strong and well-developed voluntary muscles may have a poor postural tone, and it is indeed noticeable to-day that many girl athletes with a well-developed bony frame and muscles have an extremely poor stance and hold their bodies very badly. It is also probable that girls who are occasionally seen with a marked "ptosis habitus" and no symptoms have, in spite of their deformity, developed good postural tone.

CHANGES IN MENTALITY.

In the advanced stages these patients usually show an abnormal mentality which is one of the chief obstacles to satisfactory treatment. Their outlook on life is miserable and despondent, their whole attention being concentrated upon their symptoms. For this reason their response to treatment is difficult to estimate, for even if relieved of their abdominal symptoms they complain of difficulties elsewhere. Their symptoms, in fact, develop a very definite functional or hysterical basis. Although they are despondent and miserable, they rarely become suicidal, and it is also noticeable that although they expend a great deal of energy in seeking advice, they rarely have sufficient application to follow the lines of treatment that are given to them. It is difficult to determine what is the relationship of these mental changes to the original disease, for it is possible that any patient subjected to long-continued physical pain would develop such a mentality, but on the other hand, as Bankart has pointed out, it may be congenital poor mentality of this sort which is so largely responsible for the absence of postural tone. Postural activity is acquired in early life, a good body position being only maintained at first by irksome voluntary effort which later becomes unconscious and reflex. A man of poor postural tone who is drilled in the army at first finds it extremely difficult to develop a correct posture, but after a time it is maintained without thought or apparent effort. A patient with the poor mentality above described is just such a one who would be unable or unwilling to go through the irksome early stages of obtaining postural activity. Mental fatigue would arise early, and prolonged effort would be impossible. A poor mentality is probably, therefore, part of the inherited disability.

ÆTIOLOGY.

Virginal ptosis is a condition which is much more common in women. In my own series of 441 cases, 340 were found in women, and even these figures are probably not sufficiently high, for the typical clinical case where the symptoms begin in relatively early life and persist for many years is found almost wholly in women, although among some of the more poorly-developed younger men of to-day there is found the characteristic body structure and early and long-persistent symptoms which are so characteristic in the female. The majority, however, of men in whom ptosis, and only ptosis, is found at operation are patients who have a normal body structure and who have not developed any symptoms until considerably later in life. Thus, the age-incidence of the individual patients among women was as follows:—

10–20 ..	22	30–40 ..	108	50–60 ..	89
20–30 ..	66	40–50 ..	87	60–70 ..	18

A large number of them thus having sought advice between 20 and 40, and only 37 per cent. of them being between the ages of 40 and 60. In the males, on the other hand, no cases were seen under 20, and 50 per cent. of them were between 40 and 60, the actual figures being:—

20–30 ..	13	40–50 ..	30	60–70 ..	3
30–40 ..	35	50–60 ..	28		

In many of them the onset of symptoms seems to be definitely due to hard work at an age when the body is beginning to tire, and, indeed, men of this age are often unwilling to admit that they cannot work as hard as formerly, and, in order to convince themselves that they can, actually increase their work. Such cases on examination not only show the absence of the general characters of ptosis, but rapidly improve with rest and modification of their work, so that it is doubtful indeed whether they should be included as cases of ptosis, but should not rather be regarded as examples of a temporary atony.

FIG. 3.

Prolonged spasm of transverse colon; operation revealed genera ptosis only.

It is curious that with this very much greater preponderance of the female sex, the condition should often have been regarded as a predisposing factor to the development of gastric and duodenal ulceration, although these lesions are much more common in men. In my own series of 1003 gastric and duodenal ulcers, 761 were males and only 242 females. It is perfectly true that there is often very considerable difficulty in the diagnosis of a case of visceroptosis

from a chronic gastric or duodenal ulcer, but it is relatively uncommon to find the two conditions associated. In my own series there have been 61 patients who have had both ptosis and ulceration; thus, with 1003 gastric ulcers ptosis it is only found in 6·09 per cent. The one type of chronic ulcer which is so frequently found with ptosis and upon which the ptosis unquestionably acts as a predisposing factor is hour-glass stomach, a condition which is limited to the female. In my own 49 cases of hour-glass stomach, visceroptosis was noted as being present in 24. If these and the cases of acute ulceration are deducted from the total it leaves 948 cases of ulcer, 34 of which showed ptosis, a percentage of 3·58. In the same way, if the cases of ptosis are considered, the 441 showed 61 cases of ulcer, a percentage of 13·83. If the 27 cases of hour-glass and acute ulcers with ptosis are deducted from this group also, it leaves 414 cases, with 34 having chronic ulcers, a percentage of 8·21, and this percentage is no higher than would be expected as a mere coincidence.

A consideration of the pathological and ætiological evidence, therefore, makes it clear that the clinical picture of visceroptosis is a combination of several factors. As a congenital fault there is the presence of increased mobility and membrane formation, with possibly a rather poor mentality and a tendency for bad body development. The mobility and membrane formation are seen in so large a proportion of the population that in themselves they can hardly be considered an abnormality, and if present alone will give rise to no symptoms, thus accounting for the fact that membranes and abnormal mobility are often found at operation in apparently healthy people. An inherited mental and physical weakness can, however, only be an accessory factor, otherwise the condition would probably be as common in men as in women, and we must rather look for some error in environment to explain why the symptoms are found three times as commonly in the female. Under modern conditions the training of young girls, and especially the training of their static muscles, is insufficient, and a certain number of them therefore develop a poor postural tone and a bad body structure. Should their intestines show no accessory membrane formation they will develop no symptoms, and this even if, owing to the weakness of the abdominal muscles, there is a profound degree of ptosis. It has long been noted that patients may be seen with an extreme degree of visceral ptosis who yet have no symptoms. This is especially so in the cases of maternal ptosis, where a patient who has had many children in rapid succession may have practically no abdominal wall left. If, however, they have the accessory membranes, symptoms will develop shortly after puberty, when the body changes become evident. It is because women are so much more the subjects of poor postural muscular development that the disease is so much more frequently seen in them than in men. In men the postural muscles are better developed, and symptoms do not appear until there is a loss of tone with the commencing weakness of late middle age. It is necessary not only for the intestines to drop, but they must be irregularly kinked by the bands and membranes which are present as a congenital deformity. There is possibly yet another factor, for no hypertrophy of the muscular coat can be demonstrated proximal to the bands such as would be expected if they were causing a mechanical obstruction. The pain is, however, spasmodic in type, and X ray investigations very frequently show irregular areas of spasm both in the stomach and colon (Fig. 3). The severity of the pain and its spasmodic nature is somewhat alike that found with angina pectoris and certain spasmodic arterial lesions, and is suggestive that it may be due to over-action of the sympathetic supply.

[*The concluding portion of this address dealing with Symptoms and Treatment will appear in our next issue.*]

An Address

ON

THE LAW AND ETHICS OF MEDICAL CONFIDENCES.

Delivered before the Medico-Legal Society on June 23rd, 1927,

BY LORD RIDDELL.

IN both law and ethics medical confidences are regarded as sacred with certain exceptions. The question is what the exceptions are. When may the doctor tell; when should he tell; and when must he tell? On two of these points there is considerable difference of opinion in legal and medical circles.

The rule as to medical secrecy arises out of the fiduciary relationship which exists between the doctor and his patient, analogous to that between solicitor and client. This doctrine of fiduciary relationship dates back to the time of Hippocrates, and has been recognised by the English courts in several cases relating to pecuniary transactions between doctors and their patients (Dent *v.* Bennett [1839] 4 My. and Cr. 48 R.R. 94; Billage *v.* Southee [1852] 9 Ha. 534; Mitchell *v.* Homfray [1881] 8 Q.B.D. 587).

ENGLISH AND SCOTTISH LAW.

In England there is a curious absence of direct authority as to the doctor's liability for failing to keep his patients' affairs secret. This is greatly to the credit of doctors as a race. Had they been unduly communicative to the detriment of their patients no doubt they would have found themselves in the Law Courts. There are, however, analogous cases which show that the courts regard professional secrecy as a grave moral duty which will be enforced, either because disclosure would be a breach of trust and confidence, or because secrecy is an implied term of a contract for professional or confidential services. The duty has been enforced against solicitors; see, for instance, Taylor *v.* Blacklow (1836) 3 Bing N.C. 235; against accountants, see Weld Blundell *v.* Stephens (1920) A.C. 956; and against bankers, see Tournier *v.* National Provincial Bank (1924) 1 K.B. 461. Lord Justice Scrutton's judgment in the latter case contains the following dictum:—

> I have no doubt that it is an implied term of a banker's contract with his customer that the banker shall not disclose the account, or transactions relating thereto, of his customer except in certain circumstances. This duty equally applies in certain other confidential relations, such as counsel or solicitor and client, or doctor and patient. The circumstances in which disclosure is allowed are sometimes difficult to state, especially in the case of a medical man.

The Court refrained from expressing an opinion on the degree of latitude allowed to a doctor in disclosing professional confidences.

In the Duchess of Kingston's case (1776) Lord Mansfield remarked that if a surgeon were voluntarily to reveal medical secrets he would be guilty of a breach of honour, and according to Mr. Justice Vaughan (see Taylor *v.* Blacklow at p. 249) "the law is never better employed than in enforcing the observance of moral duties." Therefore, notwithstanding the absence of direct authority, we are entitled to assume that a doctor would be legally liable for damages sustained by his patient owing to the wrongful disclosure of the patient's confidences.

In Scotland the law is more definite. The case of A. B. *v.* C. D. (1851) 14 D. 177, decided that a doctor might be sued by his patient for a breach of confidence. As this is the only case I can trace in which a medical man has been held liable for a breach of medical confidence it may be well to state the facts. The wife of plaintiff, an Elder of the Established Church, had a child six months after marriage. The kirk session demanded an explanation, including medical testimony. Thereupon plaintiff instructed defendant, a local

doctor, to examine the child and report. Defendant reported in writing that the child had been conceived before marriage, and sent a copy of the report to the minister, who handed it to the kirk session, who treated it as a confession of antenuptial fornication, declined to accept plaintiff's resignation, and ejected him from the kirk. The judges held that there was an implied contract against voluntary disclosure. Lord Fullerton added: "The obligation may not be absolute. It must yield to the demands of justice, if disclosure is demanded in a competent court. It may be modified perhaps if the disclosure is conducive to ends of science—though even there concealment of individuals is usual. But that a medical man, consulted in a matter of delicacy of which the disclosure may be most injurious to the feelings and possibly the pecuniary interests of the patient, can gratuitously and unnecessarily make it the subject of public communication without incurring any imputation beyond what is called a breach of honour, and without liability to a claim for redress in a court of law, is a proposition to which, then thus broadly laid down, I think the court will hardly give their countenance."

In the later case of McEwan *v.* Watson (1905) 12 Scottish Law Times 248 and 599, 13 S.L.T. 340, the House of Lords, on a Scottish appeal, declined to express any opinion as to the right of action. They decided the case on the ground that it could not be actionable to disclose secrets in the witness-box if the practitioner were called as a witness, or even to inform counsel and solicitors of the evidence he was prepared to give.

In some European countries, France and Germany, for instance, the disclosure of medical secrets is a criminal offence. In Germany the rule includes midwives and apothecaries.

The legal position in England may be stated thus, although in some respects not altogether free from doubt:—

1. A doctor, being in a fiduciary capacity, must preserve his patients' confidences unless relieved from the obligation by some lawful excuse.

2. Legal compulsion or the patient's consent are lawful excuses, and the performance of a moral or social duty may also be a justification. Protection of the doctor's interests may also justify disclosure.

3. There is no legal privilege for medical confidences. If called as a witness a doctor must answer such questions as may be put to him by the court.

4. A doctor shares with other citizens the duty to assist in the detection and arrest of a person who has committed a serious crime.

FIRST PROPOSITION.

"A doctor, being in a fiduciary capacity, must preserve his patients' confidences unless relieved from the obligation by some lawful excuse."

This will not be disputed, at any rate on ethical grounds. Every doctor admits that he must preserve his patients' confidences. It is true that the Hippocratic oath is rather hazy. It says: "Whatsoever I shall see or hear in the course of my profession as well as outside my profession in my intercourse with man if it be what should not be published abroad I will never divulge, holding such things to be holy secrets." This amounts to little more than a general declaration against gossiping. The practitioner is left to determine for himself what things in connexion with his profession or not in connexion with his profession "ought not to be spoken abroad." Perhaps an explanation is provided in Hippocrates' Essay on Decorum, in which he warns the practitioner not to gossip to laymen, as gossip may cause criticism of his treatment! But, as stated, the profession recognise that medical confidences are sacred. A breach of the rule may result in serious consequences. Not only may the doctor render himself liable in damages, but he may also be censured by the General Medical Council for unprofessional conduct. It must be confessed that many doctors are not as reticent as they might be. A surgeon who spends his days in removing appendices or gall-stones, or in performing hysterectomies does not perhaps realise that his patients may desire to preserve the secrets of their truncated anatomies. It must be admitted, however, that many patients, as we know to our cost, are proud to descant at large upon their illnesses, and in particular upon their achievements on the operating table. In many cases the doctor is only echoing his patient. Notwithstanding occasional lapses, doctors are entitled to claim with justice that professional confidences regarding vital matters, such as venereal disease, what I may call unofficial pregnancies, attempted abortions, and the like, are rarely divulged. If the doctor gossips he only does so in connexion with matters he regards as immaterial. If he falls from grace he offends through inadvertence or good-humoured loquacity. Perhaps when his offence is pointed out he salves his conscience by the reflection that if he has sometimes been indiscreet, he has, on the other hand, told many lies and exercised many economies of truth to save a patient's reputation. At the same time, if medical advertising were permitted, I am sure that a sign reading "Dr. Blank is a regular oyster. He never talks about his patients," would be a valuable recommendation to the laity. Some doctors think they are entitled to disclose their private patients' secrets to other medical men or to their students. This is a mistake. Medical freemasonry does not justify such disclosures. The symptoms and treatment may be stated, but not the patient's name.

The disposal of doctors' case-books raises an interesting point. Is the doctor entitled to sell them, and what are the responsibilities of the purchaser, and what are those of the doctor's executors? Many years ago I bought a doctor's case-book in a secondhand book shop for sixpence. Evidently it had been sold as waste paper or as part of a library. I suppose, strictly speaking, a doctor or his executors are not entitled to part with his case-books containing professional secrets, and that in strictness the books should be destroyed. But in these days when it has become the practice to dig up the medical histories of the departed, the destruction of the case-books of leading practitioners might rob future generations of much interesting information. Whether these revelations are justifiable is another matter. Evidently they strike a blow at the foundations of medical secrecy.

SECOND PROPOSITION.

"Legal compulsion or the patient's consent are lawful excuses, and the performance of a moral or social duty may also be a justification."

This proposition raises more difficult questions. Legal compulsion is admittedly a lawful excuse, whatever it may be from the point of view of medical ethics. But when we come to the performance of a moral or social duty, we are faced with serious problems. Let us take some hypothetical cases:—

(*a*) A family doctor is consulted by a husband or wife suffering from syphilis. Is the doctor justified in warning the other spouse to refrain from marital intercourse?

(*b*) A patient who is suffering from lunacy, venereal disease, or tuberculosis in a severe form, tells his doctor that he is engaged to be married, and although the doctor warns him not to do so, insists on proceeding with the ceremony. Is the doctor justified in warning the other party and his or her parents?

(*c*) The family doctor is consulted by an unmarried daughter of the house who proves to be pregnant. Is the doctor entitled to tell her mother?

(*d*) A doctor is consulted by a wife who has procured an abortion and who is seriously ill. Is the doctor entitled to inform the husband?

(*e*) A doctor is called to attend a domestic servant, perhaps a cook or a nurse, and finds she is pregnant or suffering from some contagious skin disease. Is he entitled to tell the mistress?

(*f*) A doctor is consulted by an engine-driver who thinks he is suffering from nervous exhaustion. The doctor diagnoses G.P.I. and tells the patient he is not fit to drive. The patient disagrees. Is the doctor justified in reporting the matter to the railway company?

(*g*) A patient shows signs of incipient insanity and talks dimly of suicide. Is the doctor entitled to warn his relatives and friends?

(*h*) A doctor is consulted by a hairdresser suffering from barber's itch. He warns him not to pursue his calling until cured. The next day he sees him at work. Is the doctor entitled to warn the man's master?

(*i*) The doctor at a V.D. clinic is consulted by a shop-girl suffering from a most contagious form of gonorrhœa. The patient lives in a hostel belonging to the store where she works. The doctor tells her she should leave the hostel as she may infect her companions. She refuses. Is the doctor entitled to warn her employers?

What is the doctor's position in such cases? Has he a moral or social duty justifying and perhaps necessitating disclosure? If he has, would it be a defence in the Law Courts?

What would be the position of a solicitor faced with similar problems? It is easier to put these questions than to answer them. In this country there is no direct decision on the subject, but an interesting Austrian case was reported in THE LANCET, April 16th, 1921. A V.D. specialist who was sitting in a public bath pool saw a young man whom he had recently treated for a syphilitic sore about to enter it. The physician objected, and as the young man persisted, he reported him to the attendant, who refused to allow him to bathe. Thereupon he brought an action against the doctor for breach of professional confidence. The court dismissed the case on the ground that the doctor had acted in the interests of the community. This admirable decision, which, of course, has no validity in this country, corresponds with views expressed by English judges in relation to the professional privilege of a solicitor. In the Queen *v.* Cox and Railton (1884) 14. Q.B.D 153, the question was whether communications by a client to his solicitor regarding a contemplated fraud could be given in evidence by the solicitor without the client's consent. The Court held that the evidence was admissible, and quoted with approval a passage taken from the report of an earlier case, "no private obligations can dispense with the universal one which lies on every member of society to discover every design which may be formed contrary to the laws of society to destroy the public welfare." The courts are, however, vigilant in enforcing professional secrecy. In Weld-Blundell *v.* Stephens (1920) A.C. 956, the Law Lords and the judges in the Court of Appeal all agreed that there is no reason founded on public policy or any other ground why an agent, in that case an accountant, should be at liberty to disclose a private wrong committed by his principal. This rule had already been laid down in 1836 in Taylor *v.* Blacklow, already quoted. In Taylor's case a solicitor, acting for both parties in a mortgage transaction, was held liable for disclosing to the proposed mortgagee a defect in the mortgagor's title. In the Weld-Blundell case a distinction was, however, drawn by the judges in the Court of Appeal between communications regarding a wrong about to be committed and one committed already. Lord Justice Bankes put two instances. (1) A person tells his doctor that he intends to commit suicide; (2) a person charged with attempting suicide confesses to his solicitor that he did make the attempt. To protect the patient the doctor would be entitled to disclose the confidence; the solicitor would not be justified in revealing the confession. In both the Weld-Blundell and Tournier cases the judges agreed that disclosure of a confidence would be justified when there is a duty to the public to disclose. The point was elaborated by Lord Justice Bankes, who said: "A contract to keep secret communications as to the proposed commission of a crime or as to the proposed commission of a civil wrong upon an individual may well be considered as an illegal contract, and the duty to the public to disclose the criminal or illegal intention may properly be held to override the private duty to respect and protect the client's confidence."

It is obvious that when called upon to deal with cases similar to those suggested the doctor is required to navigate an uncharted sea. Happily they are rarely presented in the crude form indicated in my hypothetical instances. The patient is usually prepared to coöperate with his medical adviser. But for present purposes we must face the issue. Before doing so I must point out (1) that when a doctor is employed by "A" to examine and treat "B"; for instance, when a medical man is called in and paid by a mistress to examine and treat a domestic servant—the doctor is apparently entitled to make a report to the person employing him. Weldon *v.* Winslow, the *Times*, March 14th to 19th, 1884. An action for libel: A husband asked a medical man to see his wife and report on her mental condition. He reported that she was insane. Held a privileged communication. Presumably it could not have been privileged if a breach of professional confidence. (2) That the position of a family doctor may differ from that of one consulted *ad hoc*. The confidential relationship of the family doctor may justify disclosures that would otherwise be improper. The law of libel and slander recognises that a family solicitor has special duties and privileges regarding the communication of information to his client (Davis *v.* Reeves, Ir. C.L.R. 79). Therefore, by what may be called a double analogy, the special position of the family doctor may well be a factor to be considered. (3) That a doctor attending an infant may be entitled to communicate with his parent or guardian. (4) That the position of a hospital patient differs from that of a private one, inasmuch as there is no contract between the doctor and the patient. Such a patient's rights to secrecy are not well defined, but it is conceived that the medical staff are under obligation to the patient not to disclose matters of delicacy, at any rate outside the institution.

In the French code the director of a hospital is specially prohibited from disclosing professional secrets relative to the safety of patients or family honour.

I now come to the general question of what should the doctor do when he perceives that grievous injury may result to a third party or parties if he refrains from making a communication that may involve the disclosure or partial disclosure of a professional confidence. A distinguished legal friend of mine has suggested that in certain cases disclosures may be justified on the ground that the object is to prevent the patient from doing a wrongful act. There is much to be said for this argument. The spread of infectious disease, for example, may give rise to criminal and/or civil liability. R. *v.* Vantandillo (1815) 4 M. and S. 73. Boardman *v.* Boardman (1866) 1 P. and M. 233. R. *v.* Clarence (1889) Q.B.D. 22. Clerk and Lindsell on Torts 7th edition 495. Stephen's Digest of Criminal Law, 6th edition, 147. Lord Stowell described the communication of venereal disease as "an injury of a most malignant kind." Mr. Justice Hawkins described it as "an abominable outrage" and "an atrocious barbarity." The doctor may therefore claim that in certain cases he is entitled to take reasonable steps to protect the patient against himself. He may also claim, relying on the dicta in Cox *v.* Railton, Weld-Blundell and Tournier, that it is a public duty to prevent wrongful acts and that there are occasions when the duty imposed by a professional relationship should be subordinated to the higher duties of common humanity. The terrible consequences to innocent persons of secrecy in the hypothetical cases of the syphilitic husband or wife, the diseased fiancé, the syphilitic cook or nurse, the hairdresser with barber's itch, the shopgirl suffering from gonorrhœa, or the lunatic engine-driver are matters deeply concerning the public welfare. Disclosure to avoid such consequences is justifiable and perhaps obligatory on both legal and ethical grounds. But admitting this, the practical question still remains to be answered: What should the doctor do? If he gives the warning he may get no thanks; he is certain to incur the serious displeasure of his patient, and he may find himself faced with legal proceedings. On the other hand, his conscience may worry him if he stands by and allows an innocent person or persons to run a serious risk which might be prevented by a word of warning. Moreover, in some cases if he remains silent he may run the risk of incurring public or private odium and censure. No practical rule can be laid

down. It all depends on the individual and the particular case.

THIRD PROPOSITION.

"There is no legal privilege for medical confidences. If called as a witness a doctor must answer such questions as may be put to him by the Court."

This has been decided in many cases. The Duchess of Kingston's case (1776) 20 How. St. Tr. 572 et seq. R. *v.* Gibbons (1823) 1 C. and P. 97. Wheeler *v.* Le Marchant (1881) 17 Ch. D. 681. The subject is highly controversial. Strong objection has been raised by doctors to answering in the witness-box questions involving a disclosure of professional confidences. The claim is that such confidences are or should be privileged in the same fashion as communications between solicitor and client. This view has been held not only by medical men, but by distinguished lawyers. For instance, the learned author of "Best on Evidence," describes the rule as "harsh in itself, of questionable policy, and at variance with the Code Pénal in France and the Statute Law in some of the United States of America." (See p. 560, 11th edition.) It is claimed by some medical men who object to the rule that communications made to spiritual advisers are protected from disclosure in courts of justice. This is inaccurate. (See cases quoted in Best, p. 561.) It may also be pointed out that the claim to spiritual privilege is based on legal grounds which have no application to the medical profession. It is argued that communications made to priests and other ecclesiastics were entitled to privilege under the Canon Law and that, although repealed, these particular canons are still part and parcel of the existing Common Law.

There also seems to be some misapprehension in medical circles as to the privilege accorded to communications between solicitor and client. The privilege is that of the client and not of the solicitor, who himself has no privilege (Taylor on Evidence, 16th edition, Section 911, and cases there quoted). Except as mentioned later, the solicitor must not disclose professional communications in the witness-box unless with the consent of his client, but they must be revealed if the client so desires. Those who claim privilege for medical communications also labour under the misapprehension that privilege attaches to communications made by a client for a fraudulent or criminal purpose, as, for instance, if a solicitor were questioned as to the most skilful mode of effecting a fraud.

The case for medical privilege is put thus. Medical confidences are sacred. Therefore they should be treated as such in all circumstances. Medical efficiency is a public necessity. To secure it patient and doctor must be assured that their communications will not be disclosed. Truth in litigation may cost too dear. In the interests of the community at large it is more important to maintain the sacred character of confidential relationships than to secure accuracy in a few law cases. On the other side it is claimed that it is undesirable to increase the limitations on evidence, that the existing system has caused no injustice or inconvenience, that there has been no public protest against it, that there is no evidence that fear of disclosure deters patients from confiding in their medical advisers, that the confidences of criminals could not properly be subject of privilege and that, eliminating such confidences, there are but few occasions on which disclosures detrimental to the patient are required. A typical case will display the respective points of view. A woman whose husband has been abroad 12 months consults a doctor as to her pregnancy. She has a spontaneous miscarriage. Her husband returns and lives with his wife. Some months later he hears that she had been unfaithful. He takes proceedings in which the doctor is subpœnaed as a witness. The doctor is asked what he treated the wife for. According to medical critics of the existing law it is improper that the question should be answered. The woman was compelled by her condition to consult a doctor. Is it fair and right that by so doing she should involuntarily provide evidence of adultery? Had she gone to a solicitor for advice as to the legal position arising from her indiscretion her communications with him would have been protected. It is an *a fortiori* case that communications with her doctor should receive similar protection. According to their opponents it would be an injustice if the husband were debarred from proving his case. Any change in the law would require to be made by Statute and there is little chance that Parliament would alter the existing rule. Any such alteration would almost certainly be vigorously opposed by the Law Lords and judges. The whole tendency of legislation for many years past has been to simplify the law of evidence and to remove restrictions which prevent the whole story from being disclosed to the court. Consequently it is extremely unlikely that Parliament would be prepared to add to such conventions as still exist. On balance it seems most undesirable that fresh privileges should be created which may have the effect of obscuring the truth. Those who wish to explore this subject further should read Lord Birkenhead's brilliant article, "Should a Doctor Tell?" "Points of View, Vol. I."

FOURTH PROPOSITION.

"A doctor shares with other citizens the duty to assist in the detection and arrest of a person who has committed a serious crime."

The law is clear. (See Russell on Crimes, 8th edition, Vol. I., p. 130.) A person who, knowing a felony to have been committed by another, relieves, comforts, or assists the felon, is an accessory after the fact. I suppose that binding up a murderer's wounds and sending him on his way rejoicing might suffice. Hale, however, expresses the view that a surgeon can safely attend a felon, but if he fails to report the felony to the police he will be guilty of misprision of felony. (I. Hale 332.) Misprision of felony consists in concealing or procuring the concealment of a felony known to have been committed. It is sufficient to neglect to inform the police. The offence, however, seems to be almost obsolete and it may be doubted whether any prosecution is likely to be instituted in practice. It is obvious that it is no part of the duty of a doctor to act as a private detective. It is also plain that when, in the course of his professional duties, he has reason to think that a serious crime has been committed, he is bound to help to bring the offender to justice although this may involve the arrest of his patient. For instance, suppose that during the hue and cry for the trunk murderer a doctor had been consulted by a man suffering from injuries which he admitted were sustained when struggling with a woman who had been killed in the encounter, obviously it would have been the doctor's duty to inform the police. Furthermore, no alleged ethical rule could have justified him in shielding such a criminal from justice. Plain cases of this kind require no further comment. Law and ethics demand prompt and decisive action. Indeed, even in the absence of a confession by the criminal, it would be the duty of the doctor to warn the police if he thought the circumstances suspicious. If the patient were innocent he would not suffer. If he were guilty he would get no more than his deserts.

Mr. Justice Hawkins remarked in the Kitson case (1896): "There might be cases when it is the obvious duty of a medical man to speak out, and it would be a monstrous thing for a medical man to screen a person coming to him with a wound which it might be supposed had been inflicted in the course of a deadly struggle." In the Pritchard poisoning case the doctor stated that when he first saw deceased he was under the impression she was being poisoned. Commenting on this the judge said that it was inconsistent with the doctor's duty as a medical man and a citizen to keep this information to himself. He added: "I care not for professional etiquette or rule; there is a rule of life and a consideration far higher than these, and that is the duty of every citizen and of every right-minded man to his neighbour, to prevent the destruc-

tion of human life and in that duty I cannot but say that the doctor failed." Difficult questions, however, arise as to crimes of certain classes such as abortion. If a woman admits to an abortion is the doctor bound to go to the police, and if not is he justified in doing so? In the Kitson case Mr. Justice Hawkins doubted whether a medical man would be justified, "for such a thing would be monstrous cruelty." Too much attention must not be paid to this dictum as the point did not arise for decision. More reliance may be placed upon Mr. Justice Avory's charge to the grand jury at Birmingham in December, 1914 (49 L.J. 713). A woman had died as the result of an illegal operation. Three medical men in succession attended her, and to one at least she confided the name of the abortionist. No information was given to the police so that the woman died without making a statement that could be given in evidence. The judge said that under such circumstances he had no doubt it was the duty of the medical man to communicate with the police so that steps might be taken to assist in the administration of justice. There were cases when the desire to preserve professional confidence must be subordinated to the duty of every good citizen to assist in the investigation of serious crime. It might be the moral duty of the medical man, even in cases where the patient is not dying or not unlikely to recover to communicate with the authorities when he sees good reason to believe that a criminal offence has been committed. This pronouncement led the Royal College of Physicians, London, in January, 1916, to pass a series of resolutions concerning cases of criminal abortion. In these they expressed the opinion that a moral obligation rests upon every medical practitioner to respect the confidence of his patient, and that without her consent he is not justified in disclosing information obtained in the course of his professional attendance on her. Also that every medical practitioner who is convinced that a criminal abortion has been practised on his patient should urge her, especially if she is likely to die, to make a statement which can be taken as evidence against the person who has performed the operation, provided her chances of recovery are not thereby prejudiced. If she refuses he is under no legal obligation (so the College was advised) to take further action. Before taking any steps which may lead to legal proceedings a medical practitioner will be wise to obtain the best medical and legal advice obtainable, "since in the present state of the law there is no certainty that he will be protected against subsequent litigation."

Before issuing this memorandum the British Medical Association had an interview with the Lord Chief Justice, the Attorney-General, and the Public Prosecutor, when the Public Prosecutor explained that the authorities desired that medical men should report abortions attempted or procured by third parties when the doctor was of opinion that the patient was likely to die. As appears from the resolutions, the College advised their members not to give effect to these wishes. The British Medical Association adopted the same attitude. This view, however, does not meet with universal medical approval. Dr. Sidney Smith says, in his work on Forensic Medicine, 1925: "It is no part of a doctor's duty to act as a detective, but it is equally certain that it is no part of his duty to act as a screen for the professional abortionist." Similar views are expressed in Dr. Robertson's "Medical Conduct and Practice" (1921). Since 1916, when the College of Physicians passed their resolutions, the practice of abortion has greatly increased. For instance, last week I noticed no fewer than five reported cases, in all of which I think the women had died. The question is whether, apart from legal obligation, the medical profession are justified in helping to conceal acts of this character. Of course a good deal depends upon the facts of the particular case. If the patient is not seriously ill, it would seem that the doctor is not justified in making a disclosure unless there are special circumstances. For instance, if the case is one of a series in which operations have been performed by the same abortionist. An East-end doctor, tried for murder, had kept records showing that he had performed no fewer than 400 abortions. Considering the prevalence of abortion the leaders of the profession are undertaking a serious responsibility in advising practitioners in such emphatic terms to disregard illegal acts of a most pernicious character.

To sum up, everyone recognises the necessity and importance of medical confidences. Everyone recognises that they are sacred and precious. But we must recognise also that the rules regarding them exist for the welfare of the community and not for the aggrandisement or convenience of a particular class. We must recognise, also, that they must be modified to meet the inevitable changes that occur in the necessities of various generations. As Cicero says: "*Salus populi suprema lex esto*," or in English, "Let the good of the people be the paramount law."

COLOUR TESTS FOR VITAMIN A.

THEIR APPLICATION TO NATURALLY OCCURRING PRODUCTS.

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Rosenheim and Webster [1] have recently published in this journal a study of some of the colour tests suggested for vitamin A. This work, which was confined to oils derived from the animal kingdom, showed that there is an apparent relationship between the results of feeding experiments and the intensities of colour obtained with arsenic trichloride (Kahlenberg's reagent),[2] which has been chiefly used by Rosenheim and his co-workers. A number of other reagents, however, have been suggested for vitamin A by different investigators, including concentrated sulphuric acid (Drummond and Watson),[3] powdered phosphorus pentoxide (Fearon),[4] trichloracetic acid alone (Rosenheim and Drummond),[5] or with pyrogallol or other polyphenols (Fearon),[4] and antimony trichloride (Carr and Price).[6] Of these, it has recently been demonstrated simultaneously by Rosenheim and Webster, [7] [8] [1] and by Willimott, Moore, and Wokes,[9] [10] that Fearon's trichloracetic and pyrogallol reagent is not specific to vitamin A. So far as the remaining colour tests are concerned, their specificity is not yet clearly established, and it is obvious that many further data will be required, especially on foodstuffs of vegetable origin which have been shown by feeding experiments to contain vitamin A.

Relative Sensitiveness of Colour Tests.

At the outset* of our investigation of this problem it seemed advisable to ascertain the relative sensitiveness of the four colour tests under parallel conditions. For this purpose we employed a number of cod-liver oils, whose potency in vitamin A was known from feeding experiments, and for which the analytical constants had been obtained. A method was then required for the controlled quantitative destruction of the vitamin in a concentrated source, such as cod-liver oil. It was shown by Zilva,[11] in 1919, that exposure to ultra-violet rays destroys the vitamin A in butter. More recently Peacock [12] observed the same effect in cod-liver oil, using both sunlight and various other sources of the actinic rays, but in his paper in this journal no details were given of the period of exposure or of the distance from the mercury-vapour lamp. Holmes and Pigott [13] independently confirmed Peacock's conclusions in regard to the destructive action of the actinic rays in sunlight. Working in Prof. E. C. C.

* In this portion of the work a grant towards the expenses was received from the Pharmaceutical Society of Great Britain.

Baly's laboratory with a Hewittic quartz mercury-vapour lamp at a distance of 3 inches, we have been able to show that complete destruction of vitamin A in a potent oil occurred within two hours. The four colour tests were applied to samples withdrawn at frequent intervals during the course of the destruction, and it was found that concentrated sulphuric acid and phosphorus pentoxide became negative after an hour's exposure, and would therefore seem to be only about half as sensitive as the arsenic trichloride and antimony trichloride tests. Fearon's trichloracetic and pyrogallol test, on the other hand, persisted with undiminished intensity throughout five and a half hours' exposure, and was still quite definitely positive when the experiment was discontinued, thus confirming its non-specificity.

Disturbing Factors in the Application of Colour Tests.

Employing a Lovibond tintometer, as described by Carr and Price,[6] we succeeded in obtaining on these samples of oil withdrawn at five-minute intervals quantitative readings of the blue colour given by arsenic trichloride and by antimony trichloride. Since it has been suggested by Rosenheim and Drummond,[5] and by Takahashi and others,[14] that the blue colour is indicative of vitamin content, we used these readings to measure the amount of vitamin destroyed by the ultra-violet rays. Similar results were obtained with the two reagents, but antimony trichloride was found rather more sensitive, the blue colour persisting longer, and enabling us to take readings down to about 70 per cent. destruction, using the 30-second limit we have suggested.[10] A somewhat extended study of Carr and Price's method, to be published elsewhere,[35] has led us to the conclusion that it is necessary to pay attention to a number of factors, including temperature, time at which reading is taken, concentration of reagent, and of vitamin, if reliable results are to be obtained.

In the course of this work on irradiation of cod-liver oils an important observation was made that destruction of the vitamin continued after the oil had been removed from the action of the rays, even though it was protected from the action of daylight and tightly stoppered. Thus the actinic rays would seem to set in train destructive processes which apparently continue, month after month, until the whole of the vitamin is rendered inactive. An oil, for instance, in which only 3 per cent. of the vitamin A was destroyed at the time of irradiation, was found three months later to have lost 25 per cent.[15] Strong emphasis is therefore laid upon the necessity of protecting all cod-liver oil, and also other sources of vitamin A, such as milk and butter, from even a few minutes' exposure to the actinic rays. Otherwise, an oil whose original potency had been ascertained by laborious and costly animal experiments (cf. Willimott and Wokes, 1925)[16] might have lost subsequently a serious amount of its vitamin before being used clinically.

TABLE I.—*Pigments Involved in Photosynthesis.*

—	Suggested formula.	Colour by transmitted light.	M.P.C.
Chlorophyll A	$C_{55}H_{72}O_5N_4Mg$.	Bluish-green	Becomes viscous at 117–121°.
„ B	$C_{55}H_{70}O_6N_4Mg$.	Green	Becomes viscous at 120–130°.
Carotin ..	$C_{40}H_{56}$	Red	167·5–168°.
Xanthophyll	$C_{40}H_{56}O_2$	Yellow to orange	173–174° (Schertz).[19]

Another disturbing factor in the application of colour tests, especially to foodstuffs of vegetable origin, is the occurrence of various pigments. Even in cod-liver oil, Drummond and his co-workers,[17] in their recent comprehensive attempt to isolate vitamin A, found a close association between the vitamin and the lipochrome pigments of the oil. Takahashi and his colleagues[14] obtained a similar coloured concentrate, which they called "biosterin." These facts led Drummond to reconsider the theory originally put forward by Steenbock,[18] in 1919, of the possible identity of vitamin A with one of the lipochrome pigments. Of the many types of pigment found in plants, those most closely concerned with vitamin A are undoubtedly the group of four pigments involved in photosynthesis, the more important properties of which are summarised in Table I. from results published by Willstätter.

Relation of Vitamin A to Photosynthetic Pigments.

In some unpublished experiments, Willimott and Moore attempted to ascertain whether chlorophyll A or B could function as possible precursors of vitamin A. Our experience was that chlorophyll extracted from nettle leaves and other sources induced growth in rats on a vitamin A-free diet. Whether this was due to the chlorophyll itself or to the presence of traces of vitamin adsorbed upon it remains an open question, the latter explanation being the more feasible. A commercial sample of flake chlorophyll, supplied by a leading maker as supposedly pure, when fed to rats gave a definite negative result, but, unfortunately, was found to be contaminated with copper. It is noteworthy that phytol, a product of the hydrolysis of chlorophyll, was tested independently by Javillier[20] and his co-workers, and by Drummond,[17] in 1925, with negative results in both cases.

It is somewhat surprising that of the other two photosynthetic pigments carotin has received by far the most attention, although it occurs in the green leaf in smaller amount than does xanthophyll. Perhaps this is explained by the fact that vitamin A accompanies carotin rather than xanthophyll in the phase test. Carotin was fed by Drummond[21] in 1919, by Miss Stephenson[22] in 1920, and again by Drummond[17] in 1925, in every case with negative results. A most interesting colour reaction of carotin is its behaviour with either arsenic trichloride or antimony trichloride. In each case a deep *permanent* blue is obtained. In the application of colour tests for vitamin A to foodstuffs and pharmaceutical preparations these reactions are of peculiar significance.

In the case of xanthophyll, which also gives a permanent blue with these reagents, Drummond was unable to obtain a specimen sufficiently pure for feeding, while in 1920 Rosenheim and Drummond,[23] who fed an impure preparation of xanthophyll to rats, obtained a growth response, but rightly considered the results inconclusive. In view of this, it was thought worth while to prepare pure crystalline xanthophyll and to feed it to vitamin A-deficient rats. This experiment of Willimott and Moore[24] showed conclusively that xanthophyll is not identical with vitamin A, a result which had been indirectly obtained by Palmer and Kempster,[25] who fed chicks for two generations on a diet devoid of xanthophyll and still obtained normal growth and well-being, although the eggs and tissues were practically free from pigment.

It would thus appear probable that vitamin A is not identical with any of these four photosynthetic pigments. Steenbock's theory has indeed been abandoned by its originator,[26] and by Drummond,[27] and other workers. Nevertheless, these pigments, which are found widely scattered throughout the vegetable kingdom, as well as in certain animal products, cannot be ignored when colour tests are being applied to foodstuffs, because both carotin and xanthophyll give *permanent* blue colours with arsenic trichloride and antimony trichloride and therefore interfere with the *transient* blue colours given by these reagents with vitamin A. The question arises: Is it possible to remove carotin and xanthophyll, and chlorophyll also if present, from foodstuffs and natural products without affecting the content of vitamin A?

The method which appeared to us to offer most promise was adsorption of the pigment by means of a suitable agent. A series of finely powdered charcoals and other adsorbents was obtained and their relative adsorptive capacities determined. The

results obtained, details of which will be published elsewhere, showed that it is possible to remove any of these interfering pigments from foodstuffs, such as butter-fat, egg yolk fat, maize oil, spinach, &c., by several hours shaking of a petroleum ether solution with a good charcoal, using approximately 10 g. to each 100 g. of butter-fat, &c. The vegetable charcoal norit gave the best results. Whether in the removal of the pigment the vitamin A also is affected is a point we have had under consideration. Evidence so far obtained, both by feeding experiments and by colour tests, would seem to indicate that vitamin A is not adsorbed to any very considerable extent by charcoal used to remove carotin and xanthophyll. In the meantime, employing this technique for the removal of interfering pigments, we have applied the above described colour tests to a variety of foodstuffs and natural products whose potency in vitamin A has been ascertained by feeding experiments in most cases. In Table II. are summarised the results obtained with cod-liver oils, their unsaponifiable fractions, and other derivatives.

Colour Tests for Vitamin A in Cod-liver Oils and Derived Products.

The three samples of cod-liver oil obtained from different sources† gave practically identical results with arsenic trichloride and with antimony trichloride; the colour persisted with undiminished intensity when equivalent amounts of the respective unsaponifiable fractions were tested. The Iceland oil, which gave the most intense reactions, has been found to protect completely from vitamin A-deficiency albino rats to which it was given as sole source of this vitamin over a period of several months, in doses of 20 mg. When the vitamin A in these oils is destroyed in various ways, by treatment with concentrated sulphuric acid, or with phosphorus pentoxide, by irradiation, or by aeration at different temperatures, we have always found all the tests agree in becoming negative. The results we obtained by aeration, which are given in detail elsewhere,[28] show close agreement with those obtained in 1925 by Rosenheim and Drummond,[5] who found that the arsenic trichloride test became negative after 1 hour's aeration at 100° C.

Since cod-liver oil is known to contain two of the three different fat-soluble vitamins, it seemed desirable to ascertain whether the presence of vitamin D in any way interfered with the colour tests for vitamin A. For this purpose the Glaxo Research Laboratories kindly supplied us with a sample of cod-liver oil from which vitamin D had been completely removed by the Zucker [29] process. Feeding experiments had shown this to be a D-free source of vitamin A, and on applying the colour tests strong positive reactions were obtained in each case. On the other hand, a concentrate of vitamin D (ostelin) obtained from the same laboratory gave negative results. These findings indicate that the colour tests for vitamin A are not qualitatively interfered with by the presence of vitamin D, an observation of interest in view of the fact that the actinic rays necessary for the production of vitamin D are now known to have a destructive action on vitamin A.

Olive oil and oleic acid appear to exert some inhibitory effect upon the application of the colour tests. Pure olive oil and oleic acid of themselves give negative results, and would thus appear to be possible diluents for cod-liver oil. Olive oil has in fact been frequently used in this capacity, but its unsatisfactoriness is obvious, because of the possible presence of organic peroxides, which gradually destroy the vitamin A. Another disadvantage where feeding tests are being made in parallel with colour tests is the fact that low concentrations of cod-liver oil (5 per cent.) in olive oil may not be detectable by the colour tests, even when freshly prepared solutions are examined.

† We are indebted to Messrs. Allen and Hanburys, Parke, Davis and Co., Southall Bros. and Barclay, and Evans, Sons, Lescher and Webb for supplying samples of cod-liver oil of definite origin, also much information in regard to the various processes adopted in their preparation.

In the case of cod-liver oil, we have not been able to remove the natural pigments by adsorption on to charcoal, but the amount present in the pale refined oils usually supplied for medicinal purposes is not sufficient to cause appreciable interference with the colour tests. It is significant that carotin or xanthophyll‡ (1 in 2000) added to a cod-liver oil, whose vitamin A has been completely destroyed by irradiation, causes positive results to be given by arsenic trichloride or antimony trichloride. Fortunately, it is possible to remove these pigments by shaking with a suitable charcoal; also other experiments show that this procedure does not appear to remove any vitamin present.

Colour Tests for Vitamin A in Foodstuffs and Natural Products.

On turning to foodstuffs and natural products (Table III.) containing vitamin A, it is impossible to obtain satisfactory results until the interfering pigments have been removed by adsorption. Butter-fat, after complete decolorisation, still gave definitely positive tests. An interesting discovery was that annatto, which is commonly used to colour butter, butter substitutes, and cheese, gives a transient blue colour with the vitamin reagents, due probably to the constituent bixin. Fortunately, this also could be removed by adsorption. In order to ascertain the possibility of applying the colour tests to infants' foods, samples of dried milk prepared by the roller and by the spray process were also tested. Three samples of lard examined all gave negative results.

The samples of orange and of lemon rind oils had been prepared for us by Mr. C. P. Wilson in the research laboratory of the California Fruit Growers Exchange at San Dimas by cold expression from the peel of fresh ripe fruit. They had been carefully protected from the action of light and air. The orange oil was of deep red-brown colour, and it was impossible to observe the characteristic blue colour until the pigment had been removed. The lemon oil was of a yellow colour, and also required to be decolorised. The results obtained with colour tests on these rind oils, after decolorisation, agreed with the findings of Morgan [30] and ourselves [31] working on the actual rinds, and testing for vitamin A by feeding experiments. Our results go to confirm Morgan's conclusion that fresh orange rind oil is one of the most potent sources of vitamin A in the vegetable kingdom. In the case of the orange juice, which was obtained from fresh ripe Californian navel oranges (Sunkist variety) 125 c.cm. of juice was concentrated in vacuo, the residue taken up in a little water, well extracted with chloroform, decolorised, and evaporated nearly to dryness. The product gave definitely positive reactions with the two colour tests, arsenic trichloride and antimony trichloride, but doubtful results with the other two tests. The same juice tested on albinos for vitamin A had a curative dose of 5 c.cm. per head per day.[34]

Another potent source of vitamin A in the vegetable kingdom is spinach leaves. An acetone-ether extract of early spring spinach was prepared of such potency that 25 mg. was a protective dose for rats on an A-free diet. This extract was taken up in petroleum ether and decolorised with norit, and the colourless filtrate was concentrated in vacuo and tested. Since Chick and Roscoe [32] found fresh spinach leaves to be a source of vitamin A practically free from vitamin D, the procedure has been adopted in many laboratories of using fresh spinach leaves as a source of vitamin A when testing for vitamin D. In view, however, of the large dose of the fresh leaf that may be required (Chick and Roscoe found that over 2 g. may be necessary) and the wide variations which may occur in vitamin content, we [33] suggested some time ago that an acetone-ether extract of carefully dried spinach leaves might prove a much more stable and concentrated source of vitamin A. It is of interest to

‡ Crystalline samples of pure carotin and xanthophyll were kindly supplied by Prof. Heilbron, of Liverpool University, for the purpose of this work.

TABLE II.—*Colour Tests for Vitamin A in Cod-liver Oils and Derived Products.*

Material tested.	Colour tests (*a*).				Vitamin A content by feeding experiment (*b*).
	Conc. H_2SO_4	P_2O_5.	$AsCl_3$.	$SbCl_3$ in $CHCl_3$.	
Norwegian cod-liver oil (Lofoten, 1926)	++	++	+++	+++	+++
After 2 hr. irradiation at 3 in. ..	–	–	–	–	–
After treatment with H_2SO_4 ..	–	–	–	–	–
After treatment with P_2O_5 ..	–	–	–	–	–
Newfoundland cod-liver oil ..	++	++	++++	++++	++++
Aerated ½ hour at 98° C.	±	±	++	++	
Aerated 75 minutes at 98° C. ..	–	–	–	–	–
Iceland oil	+++	+++	+++++	+++++	++++
After 2 hr. shaking with norit ..	+++	+++	+++++	+++++	++++
Irradiated cod-liver oil (2 hr.), plus carotin or xanthophyll, 1 in 2000	? (*c*)	? (*c*)	++ (*d*)	++ (*d*)	–
After adsorption of pigment by norit	–	–	–	–	–
10 % cod-liver oil in olive oil (*e*) ..	+	+	+	+	+
50 % cod-liver oil in oleic acid (*e*) ..	? (*c*)	? (*c*)	+	+	
Cod-liver oil freed from vitamin D .	++	++	++++	++++	+++
Ostelin (2 samples) ..	–	–	–	–	–
Olive oil, pure ..	–	–	–	–	–
Squalene (*f*)	–	–	–	–	–

TABLE III.—*Colour Tests for Vitamin A in Foodstuffs and Natural Products.*

Material tested.	Colour tests (*a*).				Vitamin A content by feeding experiment (*b*).
	Conc. H_2SO_4	P_2O_5.	$AsCl_3$.	$SbCl_3$ in $CHCl_3$.	
Dairy butter, Danish (*g*)	?	?	+	+	+
After adsorption of pigment (*g*)	?	?	+	+	+
Vegetable margarine (*h*)	–	–	–	–	–
With annatto (*i*)	+	?	+	+	–
After adsorption of annatto ..	–	–	–	–	–
Egg yolk fat* ..	?	?	+	+	++
Kidney beef suet (*j*)	–	–	+	+	+
Shredded suet ..	–	–	–	–	–
Lard (3 samples)	–	–	–	–	–
Dried milk food roller process (*k*)	?	?	+	+	+
Spray process (*k*)	?	?	±	±	
Orange rind oil* .	?	?	++	++	+++
Lemon rind oil* ..	–	–	–	–	–
Orange juice extract*	?	?	+	+	+
Spinach extract*	?	?	++	++	+++
Carrots extract* .	?	?	+	+	+
Yellow maize extract*	?	?	+	+	+

* Depigmented.

NOTES ON TABLES II. AND III.

(*a*) All these tests were carried out in dry test-tubes, using anhydrous solvents.

(*b*) Blanks in this column signify that data are not available.

(*c*) Doubtful result, probably negative.

(*d*) Colours greenish-blue, and fade rapidly.

(*e*) Dilution refers to volume in volume.

(*f*) Pure specimen kindly supplied by Prof. Heilbron.

(*g*) Petrol ether extract of clarified fat, filtered, shaken with norit, then refiltered, giving water-white solution.

(*h*) A purely vegetable product of firm consistence made from nut oils. Some samples of margarine contain a proportion of butter, in which vitamin A can be detected by colour tests.

(*i*) An aqueous alcoholic extract of the fruit of *Bixa orellana*.

(*j*) Vitamin A content of different samples of beef suet was found to be variable.

(*k*) Unsaponifiable residue from ethereal extract, taken up in petrol ether, depigmented with norit, filtered, and evaporated at 38° to 40° C.

note that we have since found such an extract to be a highly potent source of vitamin A, when measured by either animal experiments or colour tests, and further experiments have also shown that it contains no appreciable amount of vitamin D. Finally, a number of vitamin A-containing foods, such as carrots and yellow maize, were dried at 40° C. and extracted with ether, the ether-soluble matter being then decolorised and examined as above described.

It will thus be seen that the successful application of colour tests for vitamin A to pharmaceutical materials and to foodstuffs demands the careful observation of a number of precautions, some of which are only just beginning to be understood. In view of the laborious and costly nature of feeding experiments, and the wide margin of error in the results, it is obvious that any chemical means which give promise of really estimating the vitamin should be tried on as wide a range of natural products as possible. When the specificity of such tests has been definitely established, and a quantitative technique worked out, the way may be open to a new field of investigation of the first importance in human nutrition and well-being.

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STREPTOCOCCAL SEPTICÆMIA

TWO CASES TREATED WITH CONCENTRATED STREPTOCOCCAL ANTITOXIC SERUM.

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THE gravity of streptococcal septicæmia scarcely needs to be emphasised. In a recent series of 60 cases at the St. Louis Children's Hospital[1] the infection was due in 51 cases to hæmolytic streptococci and in nine to non-hæmolytic streptococci; only one of the hæmolytic cases recovered. The details of Case 1 are published in the hope that the treatment adopted at a time when the patient appeared to be beyond hope of recovery may be found to give equally good results in other cases of streptococcal septicæmia.

CASE 1. *Septicæmia Secondary to Otitis Media in a Child* by Drs. Sanderson and Capon).—The patient, aged 6¼ years, was an only daughter. She was born in Singapore, but had been in England for about ten months. Her only previous illness was broncho-pneumonia when 1 year of age. On March 14th, 1927, while at school, she came under the care of Dr. R. M. Littler, of Southport, on account of slight pyrexia, followed in three days by left-sided otorrhœa. Careful inquiry elicited that she had been troubled with a slight cough since Christmas, 1926, and that she had seemed lethargic and drowsy for about three weeks before the ear began to discharge. It is noteworthy that there had been no previous aural trouble, and that little pain was present. The throat was normal.

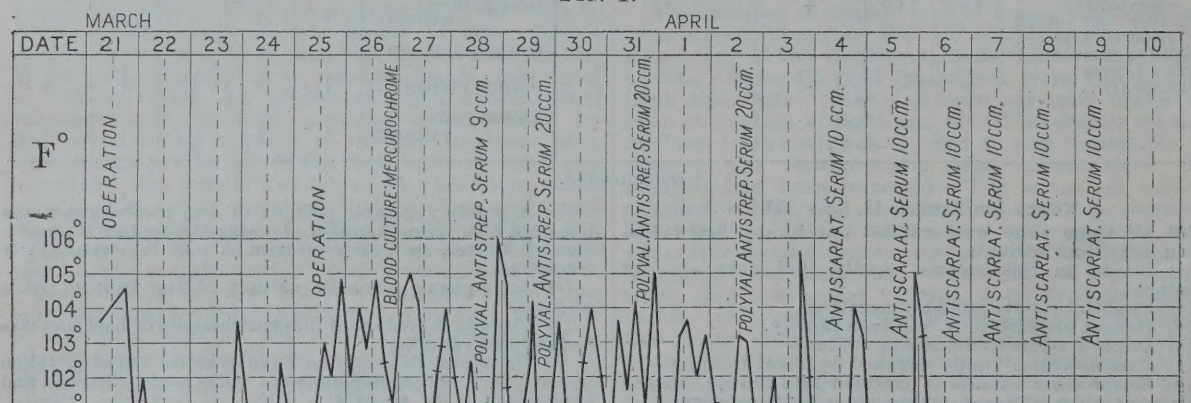
On March 21st she was seen in consultation by one of us (W. S.), who found the left tympanic membrane to be red and bulging, with sagging of the postero-superior wall of the meatus. There was no tenderness behind the ear. The mastoid antrum was opened on the same day and many air cells were found to contain pus. The temperature fell to normal, but began to rise again (see Fig. 1).

On the 25th the temperature was still ascending; the lateral sinus, middle cranial fossa, and cerebellum were exposed and examined; no local cause of pyrexia was found. On March 26th the patient was seen also by N. B. C. She then looked extremely ill. The tongue was coated, the breath foul-smelling, the lips were dry and there was a slight follicular infection of the tonsils. The chest showed no abnormal signs except those of slight bronchitis. The spleen was not palpable. The pulse was rapid (150) and soft. In the heart the only abnormal sign was a soft blowing systolic bruit at the pulmonary area. The eye-grounds were normal. The urine (not a catheter specimen) was slightly turbid and contained a trace of protein, much acetone, and microscopically only a few epithelial cells. No reducing substance was found.

With the evening rise of temperature the patient's condition deteriorated still further and a blood culture was taken at midnight on the 26th. Four broth tubes were inoculated with varying quantities of the patient's blood, and at the same time 3 c.cm. of a 1 per cent. mercurochrome solution were injected intravenously. On cultivation of the blood-broth each of the four tubes was found to contain a pure growth of hæmolytic streptococci. Daily subcutaneous injections of polyvalent antistreptococcal serum were then instituted; the first dose was 9 c.cm. and subsequent doses were 20 c.cm. Two well-known brands of serum were used without any appreciable effect. The patient's general condition became extremely bad; slight rigors developed and the peculiar smell of the moribund septicæmic patient was noted. Granular casts appeared in the urine.

It was then decided to employ concentrated scarlatinal streptococcal antitoxic serum (Burroughs Wellcome and Co.) and the special advice of Dr. G. R. James, who has worked for a considerable time in Prof. J. M. Beattie's laboratory upon streptococci, was invited. He recommended intramuscular administration of the serum in 10 c.cm. doses; the effect will be noted in Fig. 1. The patient's clinical condition improved pari passu with the cessation of pyrexia and the rapid improvement which resulted seems almost certainly to have been due to the antitoxic power of the serum used. The wound has not presented any unusual features and is now healed. The patient has been free from fever since April 9th. She is rapidly losing the anæmia and marasmus which were previously so marked, and her condition may be described as excellent. She is now walking again, and full recovery may be anticipated.

FIG. 1.



Temperature chart in a case of septicæmia treated with streptococcal antitoxic serum.

The wound has not presented any unusual features and is now healed. The patient has been free from fever since April 9th. She is rapidly losing the anæmia and marasmus which were previously so marked, and her condition may be described as excellent. She is now walking again, and full recovery may be anticipated.

CASE 2. *Puerperal Septicæmia* (by Dr. MacWilliam).—Mrs. E. E., aged 34, had her seventh confinement on Jan. 12th, 1927. She was attended by a midwife and the child was born without any difficulty. On the third day she had a rigor, and on the 25th she was sent into Walton Infirmary.

On *admission* the temperature was 102·2°, pulse 112. There were no local signs and a blood culture was negative. Collosol iodine, 100 c.cm., was given intravenously, and parathyroid gr. 1/10, and Kalzana (two tablets thrice daily), were ordered. On the 27th temperature was normal and she seemed much better; but on Feb. 2nd a swelling was discovered in the left labium and the temperature began to

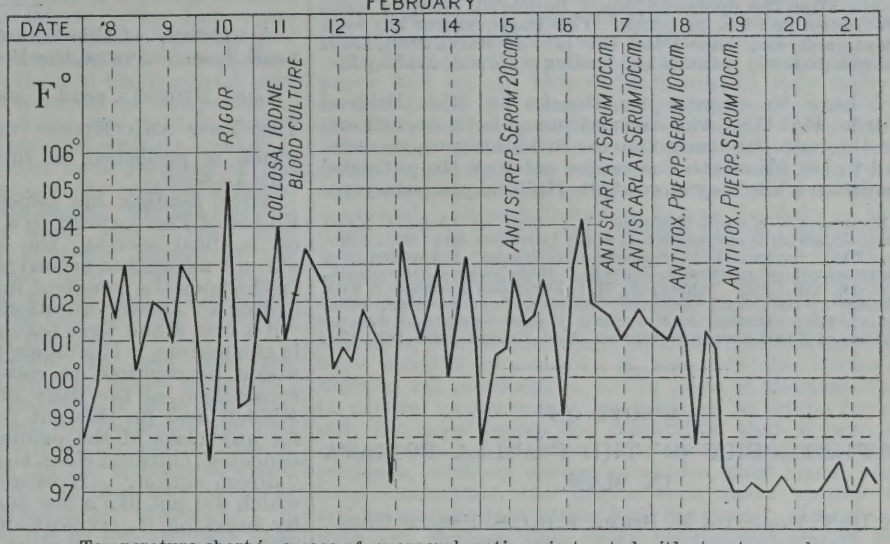
[1] Abt's Pediatrics, 1925, vi., 530.

rise. On the 5th an incision was made in the swelling under nitrous oxide anæsthesia, but the contents proved to be mainly blood-clot. On the 6th the temperature rose to 102·6°. The patient became steadily worse, and on the 10th she had a rigor (see Fig. 2). On the next day she looked very ill; the spleen was palpable and on culture hæmolytic streptococci were found in the blood. Although she was so ill the patient herself said she "felt lovely."

On the 15th I gave 20 c.cm. of ordinary antistreptococcal serum subcutaneously with the intention of giving larger doses intravenously later; but on the evening of the 16th Dr. G. R. James kindly provided me with some concentrated scarlatinal streptococcal antitoxic serum (Burroughs Wellcome and Co.) and soon after midnight on the 17th 10 c.cm. of this serum were given intramuscularly. At midday the patient was considerably better and the dose was repeated. On the 18th and 19th I gave two 10 c.cm. doses of concentrated streptococcal antitoxic serum prepared by the same firm from a puerperal streptococcus. The only reason for using a different type of concentrated streptococcal antitoxic serum was that a further supply of the scarlatinal variety was not immediately available.

On the 20th pulse and temperature were normal, the spleen was only just palpable and the general condition was excellent. There were no further rises of temperature and the patient was discharged cured on March 9th.

FIG. 2.



Temperature chart in a case of puerperal septicæmia treated with streptococcal antitoxic serum.

The prognosis in this case seemed very bad. If recovery was the result of treatment it is remarkable.

Clinical and Laboratory Notes.

INFECTION OF THE NASAL SINUSES IN RELATION TO INSANITY.

BY J. GAY FRENCH, M.S. LOND., F.R.C.S. ENG.,
SURGEON-IN-CHARGE EAR, NOSE, AND THROAT DEPARTMENT, ROYAL FREE HOSPITAL.

CONSIDERABLE attention has been paid of late to the relation of septic foci to insanity. This attention, however, has been directed to sepsis of teeth and tonsils to the relative exclusion of the nasal sinuses, and for this reason the following two cases are recorded. It has proved possible to find references (given at the end of this article) to 19 cases only of the same kind, in 11 of which the patients were males, and in seven females, the sex of one not being mentioned. The distribution of sepsis in the sinuses may be summarised as follows:—

Maxillary antrum	U. .. 8 cases	Ethmoids	U. .. 9 cases
	B. .. 2 ,,		B. .. 4 ,,
Frontal sinus	U. .. 4 ,,	Sphenoidal sinus	U. .. 3 ,,
	B. .. 3 ,,		B. .. 2 ,,

U. = Unilateral. B. = Bilateral.

In many of the cases more than one sinus was involved, and in all recovery is reported as following drainage. The two cases now to be reported are as follows:—

CASE 1.—Mrs. A., aged 59, was married at the age of 31, and had one daughter. She was admitted to Holloway Sanatorium on July 17th, 1924, with two months' history of depression and apathy. She said she had "committed the unpardonable sin of blasphemy," and that she had heard the Devil's voice tempting her to kill herself (she had twice attempted suicide and had asked her nurse to kill her). Twenty-five years previously she had been treated in a nursing home for depression.

On admission she was much depressed, and physically was frail, kyphotic, and pigeon-breasted, with a sallow, dry skin. On treatment with thyroid extract increasing from gr. ¼ to gr. 1 three times a day she improved considerably, and in August, 1924, was allowed home; but in a fortnight she was readmitted with delusions of unworthiness and wrongdoing, threatening to take her life. Thyroid treatment was resumed and in October she had improved on grs. 2 t.d.s. By December, 1924, she was more cheerful, but still thought "that God was punishing her."

I saw her in December, 1924, because of persistent nasal and post-nasal discharge which she had noticed for some years. On examination both nasal fossæ contained pus; the ethmoids were swollen and septic. Transillumination showed both antra and frontal sinuses dark. On puncture of the antra both contained pus; X rays showed all nasal cavities to be involved. Operation was advised and the patient was transferred to a nursing home where, under a general anæsthetic on Jan. 20th, 1925, all the cavities, including both sphenoidal sinuses, were opened by the intranasal route, and all showed gross sepsis, a quantity of necrosed bone being removed from both ethmoidal regions. Subsequent treatment consisted in a daily washing-out of all cavities with 1 drachm of a 10 per cent. solution of protargol in a pint of normal saline.

She returned home on Feb. 11th, physically well, but depressed. By April, 1925, she was much better, took up her household duties, and said that "the mists had cleared away." There was still a considerable nasal discharge, for which a daily lavage was carried out by herself at home. I last saw her on March 23rd, 1927, when the nasal discharge had practically ceased and she was mentally perfectly normal.

CASE 2.—Mrs. B., aged 55, was admitted to the Holloway Sanatorium on Jan. 9th, 1926, with a two months' history of restlessness, depression, and marked insomnia, accompanied at times by confusion. There were no hallucinations, nor definite delusions. The complexion was muddy, and the patient stated that she had for some time noticed an offensive discharge from the left nostril. While under treatment the patient complained daily of headaches and, in March, 1926, tenderness was noticed over the left frontal sinus and the left maxillary antrum.

I saw her in April, 1926, and found pus on the left side of the nose; the left frontal sinus and antrum were quite dark on transillumination, and the left antrum on being punctured was full of pus. X ray showed that the left frontal sinus, left antrum, and left sphenoidal sinus were infected, and I advised operation. She was transferred to a London nursing home, but immediately became restive, agitated, and maniacal; she was given gr. 1/100 of hyoscine hydrobromide hypodermically, and returned to the sanatorium on the same day.

The operation of intranasal drainage of the left frontal, maxillary, and sphenoidal sinuses was ultimately performed at the sanatorium on May 8th, 1926. After the operation the cavities were douched out daily with the protargol solution. By May 25th the colour was much improved and there was no headache, but the patient was still agitated, She was discharged from the sanatorium on June 5th, one month after the operation, much improved, showing more self-control and less agitation. This improvement has been maintained, and when I last saw her, on March 28th, 1927, she was perfectly rational and leading a normal, healthy life.

I have to express my thanks to Miss Mildred Warde, F.R.C.S., who assisted me at both operations, for the help she has given me in looking up records, and to Dr. Elizabeth Casson for notes on the patients' condition while they were at the Holloway Sanatorium.

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A NOTE ON
HYPERTROPHY OF THE PAPILLA FOLIATA IN MAN.

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DURING the last four years my attention has been frequently drawn to a condition of the tongue which receives no mention in any of the text-books of surgery that I have been able to consult. The condition appears to be a mild inflammation and hypertrophy of the rudimentary papilla foliata met with on either side of the tongue in man.

In all, 19 cases have been observed in the last four years, all of them males, with an age variation from 20 to 60 years. The patient states that he is experiencing a pricking sensation in the side of the tongue and is often in dire distress, believing that he is developing cancer. No definite ætiological factor can be traced except the sex incidence. Dental sepsis is not a factor, since it occurs both in clean and dirty mouths; further, the site of the trouble is too far back to be influenced by dental trauma. Occupation, diet, and smoking appear to exert no causative effect, and syphilis has been absent in the majority of the cases. Many of the patients appear to be of rather a sensitive and nervous type.

The condition is probably inflammatory in nature but is not associated with acute or chronic superficial glossitis, the rest of the tongue mucosa appearing quite healthy. It may be unilateral or bilateral, and in varying degree on each side. Examination of a portion of tissue excised from a severe case showed some hypertrophy of the papilla, with a mild degree of chronic inflammatory change. The patient complains of a pricking or burning sensation in the affected area of the tongue which is not increased by irritant foods or drink, but occurs especially at night. Examination shows that the papillæ on one or both sides are raised, reddened, and granular in appearance. There is no ulceration, and the rest of the mucosa of the tongue, including the circumvallate papillæ, is healthy. There is no induration and but little tenderness on pressure, no lymph gland enlargement occurs, and the general health is not affected.

Treatment begins with a complete dental toilet, and in most cases the condition will subside with the use of alkaline mouth washes and the local application of 5 per cent. chromic acid solution. Some cases are very resistant, however, and a variety of local applications may be tried, the most generally useful being salicylic acid. As a last resort destruction of the area with the actual cautery will always result in cure.

Medical Societies.

MEDICO-LEGAL SOCIETY.

A MEETING of this Society was held on June 23rd, Lord Justice ATKIN, the President, being in the chair.

Lord RIDDELL read a paper entitled

THE LAW AND ETHICS OF MODERN CONFIDENCES,

which is published in full on p. 4 of this issue of THE LANCET.

After reading his paper, Lord Riddell said the Editor of THE LANCET in a recent book had a chapter on medical secrecy, the views set forth in which did not altogether accord with those held by himself. In the book the comment made on the obligation of the doctor to answer questions in the witness-box was "if a firm stand were taken by the medical profession in the matter, it is unlikely that any prolonged conflict would be required to establish in the law courts a recognition of the duty of medical secrecy." Lord Riddell said he thought it a most dangerous thing for any class of the community, particularly for an educated, cultured class, to engage in what was termed "direct action." If every class of the community which did not like a law endeavoured to get it altered by breaking it, civilisation was bound to break up. There were proper ways of trying to get laws altered. He admitted that other less lawful means had been adopted, and sometimes successfully, but the whole basis of civilisation consisted of the recognition of certain conventions.

Discussion.

Sir WILLIAM COLLINS reminded members that in his first inaugural address he claimed that this Society would act very usefully in discussing subjects in which the lawyer, the doctor, and the layman were deeply interested, and he did not know one to which that applied more aptly than that now being debated. The speaker agreed that the Hippocratic Oath, which some held to have solved the problem, was useless for the purpose; it meant that those who took it undertook not to divulge what they ought not to divulge. Lord Riddell had propounded nine conundrums, but he did not vouchsafe replies; it was noteworthy that he had taken a different position from that he took when, five years ago, he fell foul of Lord Dawson on the sacredness of medical confidence. Now he was prepared to concede that medical confidences should be sacred, but thought there were exceptions. Sometimes it might be the duty of the medical man not to divulge to the patient what the latter was suffering from; for example, in cancer it might be a detriment to the patient's welfare. But if the disease were syphilis, for instance, it was overwhelmingly the doctor's duty to tell the patient because of his danger to the community and the need of receiving prompt and thorough treatment. Sometimes it was not the doctor's duty to disclose, sometimes it was his duty not to disclose what had been imparted to him in confidential relationship. The difficult problems were those cases of abortion which were not likely to be followed by greater consequences. With regard to information obtained in a venereal clinic, Sir William Collins referred to the case of a Chester practitioner who refused in court to communicate information he had received in the clinic, justifying the refusal by the wording of the statutory regulations promising secrecy to the patient. The speaker considered that the medical man was justified in his attitude, and regretted that he did not go further and run the risk of contempt of court rather than divulge the secret. He imagined that there sometimes arose positions in which the medical man and the priest were placed in an identical position, and in which the secrets imparted would not be revealed, even to a judge in the high court.

Dr. F. J. McCANN said he did not think there was any department of practice in which questions of medical confidence arose more frequently than in that of obstetrics and gynæcology. In venereal disease the difficulties were very great. He gave two examples. The first was that of a young married woman, mother of two children. She had acute syphilis, so acute that her condition had been diagnosed as influenza. He told her the nature of her illness; she confessed to adultery. He told the husband only that she had syphilis, that it would be dangerous to have intercourse with her, and that the children should not kiss her or use the same utensils without cleansing. He felt bound thus to protect each member of the family. In the second example the wife of a friend had a verified gonorrhœal discharge. He did not tell her its nature. She went away and a year later returned and asked what was the nature of the discharge for which she had been treated; asked why she wanted to know, she replied that she intended to divorce her husband. He felt justified in telling her the truth and a divorce followed.

On the subject of abortion, he held that the medical man should be a doctor, not a detective; but in regard to criminal abortion, if that was suspected, his method was to ask the patient if she had had abortion procured, and if so he assured her it would be for her good to tell him the manner in which it was brought about. He had in that way obtained information which was valuable for treatment; if the patient seemed likely to die he felt strongly that the doctor should inform the authorities. With regard to unmarried pregnancies, frequently a mistress called in a doctor to examine her servant and guaranteed his fee; was that acceptance or guarantee a justification to impart the diagnosis to the mistress? In such cases when the girl was pregnant he told her so and asked whether he should tell her mistress. If she objected he did not tell; if she consented he told the mistress. He thought the law might well be amended as regards cases in which the doctor discovers on examination absence of internal genital organs in the female. Having made such a discovery should he disclose it? And if he did so could a nullity suit be brought and a decree of nullity obtained? If a woman had had complete hysterectomy performed and kept that knowledge from the husband, should the doctor tell when he discovered it? And could such husband get relief? Female impotence he considered was far more common than male impotence, and all degrees of malformations were met within those organs.

Dr. GRAHAM GRANT contended that the moment a medical man entered the witness-box and had been sworn he was in the same position as any other witness. If in doubt whether he should or should not answer a particular question, he should seek the judge's ruling; that would transfer the responsibility to the judge.

Mr. ERNEST CLARKE contended that if the sanctity of professional confidence was removed, or whittled down, patients would become anxious and would not impart that information which was necessary to the doctor for adequate treatment. Rather than violate the secrecy of what had been told him, the doctor should be prepared to suffer imprisonment.

Dr. HALLIDAY SUTHERLAND said the doctor had no real privilege in these matters, for in recent cases of the kind, as soon as the judge told the doctor he must speak, he did so. The medical profession was not very well represented in Parliament. Lord Riddell must know that no reform had been carried except by direct action. The theme of the present paper was based on the hard case, and it was a dictum of the legal profession that "the hard case makes bad law." Patients went to the venereal disease clinics only because they had confidence in the promise of secrecy, and if they learned of cases in which this had not been respected they certainly would not continue to go to them. He had once been asked to see a man who was supposed to be dying of consumption, but the speaker formed the conclusion that his journey downhill was being assisted by the administration of arsenic. He therefore saw the wife alone and asked her who cooked her husband's food. She at once changed colour and demanded to know the reason of the question. He retorted that he did not think his food agreed with him. Matters improved, and he believed that he had in this case found a way out of a very difficult situation.

Sir WILLIAM WILLCOX thought that Lord Riddell's paper had set out this difficult subject very fairly; he had taken the stand that professional confidence should, wherever possible, be respected. But there were cases in regard to which the following of this strict line would be harmful to the community—i.e., where crime was being continued and was being concealed. In such instances it was the duty of the doctor to take action. At a certain hospital in London a number of cases of obvious instrumental abortion were admitted, and it was known that a particular abortionist was concerned in them. Several deaths resulted in the series. Ought the doctor to hold his tongue in such a case, when patients in that condition were steadily arriving? It was not the doctor's duty to act as detective, nor in cases of abortion due to natural causes was it his function to try to ferret out, by questioning, the possibility that it was a case of criminal abortion. But when there was clear evidence, without asking questions, that crime had been committed, the doctor took upon himself a serious responsibility if he held his peace. He agreed with Dr. McCann that every inducement should be used to get the patient herself to make a clean breast of the matter. If that was not acquiesced in, then, in certain cases, it was the duty of the doctor to inform the authorities, though he would be wise if, before doing so, he took the best available legal advice. Where a medical witness demurred to answering a question and the judge ordered him to answer, Sir William Willcox agreed that he should obey, but under protest. With regard to cases of suspected poisoning, the safe course was to have the excretions examined for poison. If poison was found, of course the authorities should be informed. Dr. Sutherland's wise action protected his patient and also stopped the nefarious practice.

Dr. MORGAN FINUCANE did not think that Lord Riddell had succeeded in showing that the law had much bearing on ethics and medical confidence. No doctor was justified in constituting himself a martyr by refusing to give evidence in court when ordered to do so. Venereal diseases would probably be notifiable before long, and then where would medical confidence stand? The medical profession must endeavour to march with the times and realise the trend of modern legislation.

Summing Up.

The PRESIDENT summed up the discussion. Lord Riddell had presented the subject in a clear and elaborate paper, for which the Society was greatly indebted. When, five years ago, Lord Dawson had introduced a similar subject, the President had stated his views, and he had seen no reason since to alter them. The position seemed to him to be as follows: One question was, What may a doctor tell, in law? That turned upon the question whether or not he was under a legal obligation not to disclose the information he obtained from the patient. He had no doubt that, subject to certain qualifications, it was an implied term of the contract of employment as a medical man that that medical man would not disclose, to the disadvantage of the patient, the information he obtained. The further question arose as to what were the limits of that obligation at law—i.e., not to disclose the information obtained? First, the doctor was not under an obligation to withhold information given to him which would enable a crime to be committed, and the speaker thought he was under no obligation to withhold information obtained from the patient that a crime was about to be committed. The President was not now dealing with the doctor's duty to volunteer that

information, but only with the point as to whether it was a breach of the contract if he did disclose it. It was plain that, in law, he was obliged to disclose the information he obtained from the patient if he was called upon as a witness in a court. There might be two opinions as to whether that ought to be the law, but there could not be two opinions as to whether that was the law at present. There might be involved large questions of social duty, as Lord Riddell had pointed out, all of them admittedly difficult questions; and circumstances might arise in which either the contract did not extend to withholding information in such circumstances because the contractual duty would conflict with the urgent and strong social duty; or that, though the doctor might be under a contract to his patient, yet it might be his duty, as a citizen and a man of honour, to break his contract, for there might be occasions on which a breach of contract was, ethically, justifiable. While a doctor might expose himself, technically, to an action for breach of contract, yet a court, in dealing with the matter, would always have to deal with the question of damages, and in such a case as he was predicating it was difficult to conceive that any jury or any judge would be likely to impose the burden of substantial damages upon him. But other difficult matters, apart from the contractual aspect, might arise. As a rule, the contract was made with the person who employed the doctor, and the person from whom the doctor received his remuneration was not in all cases the patient, such as where the doctor was asked by an employer to examine and treat his servant. And a very obvious case would be that in which a doctor was employed by an insurance company to report on the condition of a proposed assuree. It was plain that in such a case the doctor's contract was with the insurance company, and he could disclose to the latter the information he derived from the examination. He imagined that most doctors would consider themselves under a professional obligation not to disclose unnecessarily the information obtained from the examinee, who, however, was not a contracting party. That obligation it was very important to maintain. Whether the obligation rested upon contract, or upon something short of a legal obligation, an honourable professional understanding, the President held that there was immense importance in the point of view put forward by Mr. Clarke; it was of public importance that persons should be able to have recourse to doctors in full confidence so that they might fully disclose to them their disease and their history, without any anxiety that such would be made public. In regard to no class of case was it of more importance than concerning venereal disease. He could not understand how it would ever be possible to ensure satisfactory treatment of venereal disease, and to ensure that people so suffering would come for treatment in its early stages, or as soon as they could, unless there could be an absolute guarantee against publicity. It was of extreme moment that this confidence should be maintained. When dealing with the legal obligation to tell, he felt there were a great many cases in which the judge should exercise discretion—and it was often so exercised—as to whether he would enforce disclosure or not. There were instances in which the judge could tactfully say he did not think it would be to the public disadvantage if the information were not disclosed.

Then there arose the question as to when a doctor should tell. The cases put by Dr. McCann in illustration of the difficulties met with were distinguishable from each other. The first case raised the question as to disclosure to a third person of a confidence reposed by the patient—i.e., where a wife was suffering from syphilis—and the question for decision was whether the information should be imparted to the husband. He could hardly imagine a doctor in such circumstances as were related failing to take steps in some way to protect the young innocent husband and children. No doubt the obvious course was to insist on getting the permission of the patient to inform the husband, as Dr. McCann did. But each doctor must be the arbiter as to his own honour in particular circumstances. The other question Dr. McCann raised seemed to be a simpler one—namely, that in which the patient was suffering from a venereal disease—and the question was whether she herself should be told the nature of the disease. That did not involve a breach of professional confidence, and the President saw no difficulty in dealing with the position. He had often wondered why a doctor should so often feel it was within his discretion to refuse to tell a patient what he was suffering from. His own feeling was that if he asked a medical man what he was suffering from he was entitled to know, and if the doctor refused to give the information, he was taking upon himself a serious responsibility, even though it might be argued that the refusal was in the patient's interests. Dr. Sutherland had asked what the doctor should do when he found or suspected that a patient was being poisoned; the President did not think that this touched the matter under discussion. In those circumstances the duty of the doctor was to his patient. If he had information that the patient was being poisoned, why should he have qualms as to what information he should publish? What objection could there be to his protecting his own patient? It was not likely that the patient who was being poisoned would object to steps being taken in communicating the facts to the proper quarter. As to the kind of case spoken of by Dr. McCann where the doctor found the genital organs of a wife to be absent, that was a case for the doctor's discretion; the judge was not so well qualified to form an opinion as to what course to take as was the doctor himself. It did not seem to be the kind of case which involved the social duty to the husband. The doctor could use his discretion as to whether he would induce the wife to impart the information to her husband. He, the speaker, agreed that in such case marital relations were seriously affected, but there were cases in which, apparently, happy marital conditions continued between the parties, even where one or other party was unable to perform the ordinary marital duties, and there would be a difficulty, in such a case, in supporting such disclosure without the consent of either husband or wife. It differed from the case in which to continue marital relations involved the infliction of cruelty—namely, in imposing on the innocent party the risk of venereal disease.

The question of abortion was of immense medico-legal interest. This practice was very prevalent, and, apart from the actual danger to life, there was the intense agony to which the victims were frequently subjected. It involved two persons; the ordinary case was that in which the doctor was called in to examine the woman who was suffering from the effects of abortion. Everybody must sympathise with the view of that great judge, Justice Hawkins—who had a kind heart—when he said that for the doctor to feel himself under an obligation to give up his patient as having herself committed a criminal offence when she was, perhaps, suffering from peritonitis, would be a monstrous thing. With that the President agreed. If a woman who had been suffering from the effects of abortion could not consult a doctor without being exposed to the risk of being sent to penal servitude, it would mean that more women would die from this cause than at present, and that women suffering in this way would be deprived of humane treatment. But the question arose as to who was the abortionist; the person who carried out the abortion was the one to get at. Though it might be difficult for the doctor to disclose the name of his patient, it might very well happen that he could procure from her the name of the abortionist, and he might be able to give to the police a hint that in a particular—unnamed—case there were grave reasons for suspecting that such a person was carrying on business as a professional abortionist. But it would be a different matter when death was impending.

Lord RIDDELL briefly replied.

ASSOCIATION OF AMERICAN PHYSICIANS.

ANNUAL MEETING.

THE forty-second annual meeting of this Association was held at Atlantic City, N.J., on May 3rd and 4th. Owing to the illness of the President, Dr. C. H. HOOVER, the chair was taken by the Vice-President, Dr. A. S. WARTHIN.

Among the communications submitted were the following:—

Dr. JOSEPH CAPPS (Chicago) read a paper on the

Sensibility to Pain of the Pericardium.

There is, he said, an impression that pain is the most characteristic symptom of pericarditis, but Mackenzie was impressed by the absence of pain in pericarditis without traces of pleurisy. When pain exists it may be dull or sharp; it may be localised or radiate to the shoulder or abdomen. In order to investigate the underlying conditions experimental methods were tried. We used cases with paracentesis and touched the serous pericardium and sac round the heart through the fourth interspace; this caused no pain. When entry was made through the fifth interspace there was pain in the phrenic nerve region of the neck. Four clinical groups were studied: (1) pericarditis with effusion, (2) dry, (3) cases with coronary thrombosis, (4) with pleurisy. In the first group, even with large effusion, there was no pain or respiratory distress. The second type, dry terminal pericarditis, had no pain or distress. The patient died in 36 hours. There was no pain with coronary thrombosis. In pleuro-pericarditis there was sharp pain at the end of inspiration, also pain in shoulder. From an experimental standpoint, therefore, we have been unable to elicit pain from irritation of the serous sac of the pericardium and sheath of the heart. The only pain elicited was by irritation of the phrenic nerve supply through the fifth interspace, which radiated to the neck. Large pericardial effusion caused respiratory distress, but no pain. Pleuro-pericarditis caused sharp pain increased by expiration.

Dr. L. G. ROWNTREE (Rochester, Minn.) contributed studies in

Experimental Thrombosis.

Six or seven per cent. of the surgical deaths in Rochester, he said, are due to pulmonary embolism. We have tried to study this phenomenon by experimental methods, with a view to devising an effective régime for its prevention. We used experimentally a tube with a dialysing membrane, which is put into the vein and the blood flows through without contact with the air. By means of our apparatus we can slow the stream or make it rapid; we can apply heat or cold or chemical substances; we can produce pathological conditions; and we can study extracorporeally thromboses which occur in vivo. We can study what is going on in the tube. We find heat hastens coagulation time and cold retards it. To prevent clotting we used heparin, which is an antiprothrombin. Coagulation is much delayed thereby and clots form slowly, but there is no thrombosis. In jaundiced animals there was great formation of white thrombi but no fibrin. With many platelets, and without fibrin formation, the blood continued to circulate. Thus it is possible to prevent fibrin formation.

Dr. EUGENE S. KILGORE (San Francisco) gave the following communication on

Polycythemia in Feather Dyers.

In July, 1919, there died in the University of California Hospital a German feather dyer (Mr. C. M.), aged 61, who showed clinically a high red count (up to 8,000,000), considerable cyanosis of nose and ears, palpable spleen, some fibrosis of the apex of the right lung, and, terminally, severe substernal and precordial pain, and on autopsy erythroblastic hyperplasia of marrow of long bones, coronary thrombosis, chronic myocarditis, splenic and renal embolism, and fibrous tuberculosis of the right apex. Two years previously the cyanosis and other physical features were the same, but the blood findings were not remarkable (4,416,000 red blood corpuscles). Before his death there came to visit him his assistant in feather-dyeing, Miss M. D., aged 39, who we then learned had been previously seen by Hurwitz and Falconer and as having polycythæmia. She gave them her occupation as milliner, so contact with chemicals was not stated. Her red cells at one time were 12,400,000. She improved following irradiation and benzene treatments. Hurwitz and Falconer reported her symptoms of dizziness, &c., as we now learn, from about the time she began dyeing, and her improvement corresponded not only with treatment but with her occupation becoming intermittent. After nine years it has ceased, and she is in excellent health with normal blood count. Owing to changes in fashion only one feather dyer remains in active work in San Francisco, a middle-aged Japanese man. He has 70 per cent. hæmoglobin (Tallquist)—6,040,000 red and 7800 whites. Feather dyers appear to be more exposed than cloth dyers to atmospheric spraying of the chemicals, as they shake the feathers on removing them from the dye-bath. Records of 12 cases of polycythæmia are recorded in the University of California Hospital since 1913—four attributable to congenital heart disease, one to emphysema, one to tricuspid disease. Two are the feather dyers referred to above, one a man who for many years dyed his hair black, the other three cases have had no dye contact, but the finding of a red count of 6,000,000 in the only surviving feather dyer in San Francisco makes it necessary to regard chemical contacts as more than coincidental. A. Hamilton (Industrial Poisons in the United States) reviews reports of workers, exposed to carbon monoxide, methyl alcohol, and ether in whom polycythæmia was noted. Malden reported 6 out of 13 workers in aniline fumes with blood counts over 5,000,000. The highest was 5,680,000. The increased concentration of red cells in all these cases has been regarded in a general way as due to primary destructive action of the poisons, with secondary stimulation of erythroblastic elements. Evidently, however, the study of dyestuffs in this connexion must be carried further. Feather dyers used mainly coal-tar derivatives. If the aniline series was responsible for the blood changes it is possible that different members of the series are not equally effective, and it is possible that the increased cell production is not simply a secondary effect of long-continued destructive action, but a primary or predominant effect of one or more of the substances, and that therapeutic use of them might be obtained.

Dr. ALBERT E. TAUSSIG (St. Louis) spoke on

Diabetes Mellitus Refractory to Insulin,

reporting cases unresponsive to doses of insulin. It has been suggested, he said, that this is not pancreatic diabetes. A patient in the Jewish Hospital, St. Louis, in 1922 had a progressively severe diabetes and showed urticaria after injections of insulin. She went into diabetic coma and enormous doses of insulin were given without making her sugar-free. One day she had 1100 units of insulin. In patients who showed little or no drop after intravenous injections hypodermic injections were tried with no better result, nor were fractional doses of 20 units hourly more successful. After two months the response to insulin showed improvement and finally it was possible to give a daily dose of 200 units. Finally the insulin was brought down to 104 units daily. The woman is able to work as a teacher. To find the reason for this refractory condition 10 c.cm. of the patient's blood were injected into rabbits, but there was no result. Tests for an allergic skin reaction gave no result; there was no trace of insulin in the urine. The theory that insulin acts as a co-ferment, transforming blood-sugar into glycogen or lactic acid, was considered. In some persons the other constituent (muscle phosphate) may

be lacking or may be present in too small amounts, so that insulin is not able to do its work.

Dr. F. M. ALLEN (Morristown, N.J.) described

Myrtillin, a Diabetic Remedy Orally Administered.

He stated that a wide variety of vegetable substances have been tried in diabetes. Myrtillin has given varying results in dogs. There are two substances present in association: (1) myrtillin, which lowers blood-sugar; (2) a substance which raises it. These two substances occur in all plants and belong to the anabolic-catabolic activities of plants. If myrtillin is effective at all it is as effective in doses of 1 g. per day as in doses of 30 g. The effect is to stabilise blood-sugar reactions when administered orally. Myrtillin is standardised by reactions in dogs. The results are the same when given by mouth or by vein, the effect lasting for days or even weeks. The effects in dogs can be duplicated in patients with mild diabetes, but cannot be demonstrated in the rabbit or the rat. Experiments on dogs show that these animals cannot survive depancreatisation more than a week; functions are depressed, resistance lowered, infections cannot be cured, wounds do not heal. When myrtillin is used, started one day before operation, pancreatectomy is performed, and the animals are then fed on meat, milk, and bread, they hold their weight and maintain strength. They play and fight, and seem lively, the wound heals, and minor infections are overcome. The myrtillin-treated dogs are generally superior to insulin-treated dogs. Life can be maintained for some weeks or indefinitely. The experiment of partial pancreatectomy is better because it resembles human diabetes. With nine-tenths of the pancreas removed there is severe diabetes, which can be controlled by myrtillin. If only one-fiftieth of the pancreas is left the animals cannot survive even with myrtillin. Autopsy shows hypertrophy of the pancreas remnant. The first step in therapy is to make the urine and blood normal with insulin or diet, and then to give myrtillin and then watch for gradual building up of tolerance. It is necessary to use patients who have been studied over a number of years to guard against spontaneous gain in tolerance. In a series of 81 this condition excluded 24 patients, and of the remaining 57 21 were failures, 36 were positively benefited, 6 patients had never received insulin, and 15 patients were able to reduce insulin and increase diet. The remaining six patients were able to discontinue insulin.

Conclusions.—Myrtillin can be administered orally. It is harmless. It builds up tolerance. On the other hand, it is less prompt, less powerful, and less certain than insulin. It has a certain number of failures. The method deserves clinical trial, but should not be considered as a substitute for insulin.

Dr. JOHN F. ANERSON (Washington, D. C.) spoke in confirmation of Dr. Allen's results. He said that the work was begun in 1926. Myrtillin was prepared from blueberry leaves, extracted by 6 per cent. alcohol solution, and the protein removed by further precipitation. A clear filtrate contains the preparation, which is a yellowish white powder freely soluble in water. It contains traces of sulphate of ammonium chloride, iron, magnesium, calcium, sodium. In the experiments were used (1) normal dogs, plus myrtillin, plus glucose; (2) totally depancreatised dogs, without myrtillin; (3) totally depancreatised dogs, with ten days of myrtillin. In the first experiments were got normal curves for individual dogs. Blood samples were taken, then 1 g. myrtillin was given, followed by 10 g. glucose per kilo body-weight. Thirty-eight dogs were studied. The administration of myrtillin before glucose prevented a sharp rise in blood-sugar. The result persisted for 15 days with gradually lessening effect. The blood-sugar later returned to normal after myrtillin. The results in the total pancreatectomy were: myrtillin 24 hours after operation; 1 g. myrtillin every morning; 200–500 g. meat, 20 g. white bread. Result: loss of weight until death, temperature normal, blood-sugar 200 to 300 mg. per 100 c.cm., at death 400 mg. The animals were lively, hungry, had no excessive thirst; duration of life 21 to 61 days. In the third experiment 1 g. myrtillin by mouth was given ten days before operation; four dogs were used and survived 21–48 days. The results were the same as in the previous operation. In the fourth experiment without insulin or myrtillin the animals died in a few days and wounds did not heal.

In regard to the clinical side of the work 16 patients with long-standing diabetes and under care of physicians were studied. In two cases there was remarkable improvement; one showed no benefit; in two patients on insulin the amount of insulin was decreased (60 units to 20 and 20 units to 5). These results were corroborated by another physician. One patient had influenza and had to increase insulin temporarily, but later was able to reduce the amount again.

Dr. J. C. MEAKINS (Montreal) discussed the

Reaction of Chronic Nephrosis to Thyroid and Parathyroid Medication.

Improvement has been noted, he said, in nephrosis as a response to thyroid and parathyroid medication. The effect is due to the readjustment of the calcium metabolism which has been studied. In a woman, aged 33, with recurrent attacks of œdema which was resistant to diuretics, the patient was put on thyroid medication with good result. The urine contained casts and red cells. The urea was normal. The blood calcium was low. Put on parathyroid extract, 50 units a day, there was a prompt increase in serum calcium, marked increase in urine output, and drop in weight. When the parathyroid was stopped the œdema returned. In another case, a girl with œdema and ascites, and a reverse of the albumin globulin ratio, there was an increase in blood cholesterin, the blood calcium being low. There was no response until the eighth day. This was a case of mixed glomerular nephritis with nephrosis. In another case a man, aged 24, with œdema, the parathyroid had no effect on the weight. With high protein diet there was response in weight, but none in the plasma protein. A drop in weight followed thyroid medication. The cholesterin in the blood dropped. There is evidently an endocrine imbalance in these cases which varies in different patients; sometimes thyroid is effective, sometimes parathyroid. Sometimes it is not due to calcium disturbance. The plasma proteins may not be changed. We must look elsewhere than the colloids of the blood for explanation of an œdema which is refractory.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

AT a recent meeting of this Society, held at Sheffield, with Dr. CARLTON OLDFIELD in the chair,

Miss FRANCES IVENS (Liverpool) read a paper on

LATENT SEPSIS AS A FACTOR IN THE ÆTIOLOGY OF THE TOXÆMIAS OF PREGNANCY.

Previously,[1] Miss Ivens said, she had drawn attention to the association of latent infection with the œdema and albuminuria of pregnancy, the occurrence of which was, she thought, an indication for the bacteriological examination of the urine, even in the absence of urinary symptoms. The toxæmias of pregnancy—œdema, albuminuria, hyperemesis, accidental hæmorrhage, jaundice, and eclampsia—were closely allied, and a common factor was present in all. Biochemical research had been disappointing and a bacterial origin appeared to be most probable. A series of cases investigated had been classified into four groups:—

(*A*) *Albuminuria and Œdema.*

Thirteen pregnant women with these symptoms were under care during the last two years at the Liverpool Maternity Home. In these cases the presence of coliform organisms with pus, and some-

[1] Brit. Med. Jour., 1925, i., 589.

times blood, was demonstrated in the urine. The patients were treated by rest in bed, rectal salines, calomel, saline purgatives, and potassium citrate in large doses. Only one patient, who was allowed to go home before delivery, had a stillborn child.

In 21 cases examined bacteriologically at Crofton Hospital 7 cases showed *Bacillus coli*, 2 a non-hæmolytic streptococcus, and 11 *Staphylococcus albus*, whilst in one the urine was sterile.

(B) Hyperemesis Gravidarum.

CASE 1.—A primipara vomited constantly throughout her pregnancy. The urine contained albumin, red cells, pus cells, and coliform bacilli. In addition there was an abscess of Skene's glands. The temperature was 101° F. and the pulse-rate 130. Rectal salines and potassium citrate were given in large doses and 10 c.cm. anti-coli serum were also given. A premature infant was born and lived 16 hours. The vomiting continued after delivery, with raised temperature and pulse. After vaccine treatment the patient was discharged in three months with the urine practically normal and the general condition excellent.

CASE 2.—A 2-para had had vomiting throughout her first pregnancy and had been prematurely delivered of a child, which died on the fourth day. In the second pregnancy she was well for the first three months. She then vomited incessantly. On admission the temperature was 99·8° F. and the pulse-rate 110. The patient became comatose and the vomit hæmorrhagic. The urine contained albumin, coliform organisms, and acetone and diacetic acid. A Cæsarean section was done at 26 weeks, owing to her serious condition. She quickly recovered.

(C) Jaundice.

CASE 3.—A 3-gravida was admitted with vomiting, jaundice, and retention of urine at eight months gestation. The urine contained pus, bile, and *B. coli*. After treatment with purgatives, potassium citrate, and salines improvement was marked. Labour started with excessive bleeding, but the child was born alive, though jaundiced. Rigors followed delivery with an attack of right-sided pyelonephritis. On discharge the urine was normal. It was probable that in this case, in addition to infection of the urinary tract, infection had spread to the biliary passages.

CASE 4.—A 6-gravida always vomited severely during pregnancy. Five days before confinement she vomited blood-stained material. On admission she was jaundiced; the temperature was 97° F. and the pulse-rate 120. The urine contained albumin, pus, coliform bacilli, acetone, and bile. A blood culture was sterile. A macerated fœtus was delivered after internal version for transverse lie and prolapsed cord. 10 c.cm. of antistreptococcal serum was given and rectal salines. She was quite well on discharge from hospital in a fortnight's time.

(D) Accidental Hæmorrhage.

CASE 5.—3-gravida. A Cæsarean section was performed in 1924 for contracted pelvis. In 1926 she was delivered by Cæsarean section for severe antepartum hæmorrhage. There was blood-stained fluid in the peritoneal cavity. There were hæmorrhages into the wall of the uterus. The child was dead. The urine contained a trace of albumin, coliform organisms, and streptococci. Coliform organisms were cultivated from the placenta. In 1927 a third Cæsarean section was performed. The urine was normal and the patient appeared perfectly healthy.

CASE 6.—A 5-gravida. The first three pregnancies and deliveries were normal. In labour with the fourth child there was concealed accidental hæmorrhage. She was delivered of a dead child by Cæsarean section. There was hæmorrhage into the wall of the uterus. The urine contained pus and coliform bacilli. With her last pregnancy in 1925 labour was premature. She had œdema and vomiting for five weeks previously. The urine contained albumin, coliform organisms, and streptococci. The placenta showed areas of white infarction and round-celled infiltration.

CASE 7.—A 6-gravida delivered by Cæsarean section, for placenta prævia, of a child, weight 4 lb. 5 oz. Hæmolytic streptoccocci and staphylococci were found in the wound. The urine contained a trace of albumin and staphylococci. The child died on the fifth day after hæmorrhage from the mouth and nose.

CASE 8.—An 8-gravida was admitted almost moribund with antepartum hæmorrhage. High forceps delivery of a macerated fœtus. The patient died soon after delivery. Cultures from the placenta grew coliform bacilli and streptococci. No urine was obtainable for examination.

CASE 9.—A 7-gravida was admitted with concealed accidental hæmorrhage and Cæsarean section was performed. There was blood-stained fluid in the peritoneal cavity and the uterus showed intramural hæmorrhages. The child was dead and the patient died immediately after operation. The urine contained albumin, staphylococci, and streptococci. The placenta gave growths of *S. albus* and non-hæmolytic streptococcus. A varicose ulcer on the patient's leg contained *S. albus*. The maternal liver showed hyaline thrombi. The kidneys contained hyaline thrombi with areas of coagulation-necrosis, and the uterine muscle stained badly, showing presence of hæmorrhages.

In conclusion, Miss Ivens said that she had hoped to stimulate interest in the bacteriological investigation of similar cases, for she was convinced that latent and autogenous infection played a great part in the ætiology of the toxæmias of pregnancy, especially where there was lowered resistance during pregnancy and where patients were delivered with trauma. She considered it necessary to obtain a full life-history of these patients, and to look for evidence of foci of infection in the throat, gums, and elsewhere.

She was indebted to Prof. J. M. Beattie, Dr. L. S. Ashcroft, and others who had assisted in the bacteriological investigation.

Discussion.

The CHAIRMAN said that urinary infections were very commonly associated with albuminuria. There was a danger of assuming, when organisms were present, that they were the cause, when in reality they were the result, of a certain pathological condition. He still was of the opinion that hyperemesis gravidarum was not due to a toxæmia.

Mr. A. GOUGH (Leeds) said that it was not sufficiently realised by practitioners how often the genito-urinary tract was infected. In 100 gynæcological cases examined bacteriologically by him cultures of bacteria were grown in 70, of which 10 were growths of *B. coli*. He explained the preponderance of infection by *B. coli* by the fact that it was a mobile organism capable of swimming up-stream, and able to proliferate rapidly.

Mr. J. E. STACEY said that at the Jessop Hospital, Sheffield, they had been struck with the number of cases of morbidity during the puerperium in patients with albuminuria during pregnancy and labour.

Dr. S. B. HERD (Liverpool) asked if there was any definite association in Miss Ivens's cases between sepsis during pregnancy and morbidity during labour and the puerperium.

In reply, Miss IVENS said that she had noticed that patients with latent sepsis did not do so well in the puerperium as others did.

EXHIBITION OF CASES.

Dr. HERD described a case of pregnancy complicated by

Necrobiotic Fibromyoma and Accidental Hæmorrhage.

The patient, a primigravida, was first examined when 12 weeks pregnant, and a soft non-tender swelling was noticed high up on the right side of the uterus. This was diagnosed as a subserous fibroid. At 17 weeks the patient had acute dysuria and a feeling of great pressure in the vagina and region of the symphysis pubis. On examination the uterus was felt to be displaced by a hard, tender mass fixed in the right side of the pelvis. A diagnosis of degeneration of the fibroid was made.

As it was impossible to move the tumour under anæsthesia the abdomen was opened and a degenerated fibroid was removed from the uterine wall just above the right utero-sacral ligament with some difficulty and not without a great deal of manipulation of the body of the uterus. No other fibroids were present. The patient was kept under morphia for a few days to diminish the chances of abortion, and this treatment succeeded. On the fifth day there was thrombosis in the right leg, which was believed to be due to lack of the exercises which had been ordered.

She remained quite well until 32 weeks gestation, when she developed a violent headache. On the next day the perception of fœtal movements ceased and she had slight œdema. Two days later there was marked œdema and albumin 16 g. per litre in the urine. The fœtal heart sounds were heard on that day. Two days later there was sudden onset of pain and vaginal hæmorrhage; morphia was administered. Three days later a slightly macerated fœtus was delivered. The puerperium was normal.

The special points in this case, said Dr. Herd, were the persistence of the pregnancy after marked

manipulation of the uterus, the supervention of toxæmia followed by accidental hæmorrhage, and the fact that the fœtal heart was heard for three days after the perception of movements had been lost.

The PRESIDENT said that he did not think that the lack of exercises should be blamed for the thrombosis. He suggested that the necrobiosis in the fibroid had produced toxæmia in the first place, causing a retro-placental clot which led to placental changes which later gave rise to albuminuria and accidental hæmorrhage.—Dr. E. O. CROFT (Leeds) said that it was surprising how much manipulation a pregnant uterus would stand without aborting, and recalled a similar case of myomectomy.—Mr. J. E. STACEY asked what would have happened if operation had not been performed. He had seen a case of pregnancy with a large fibroid in the fundus in which there had been symptoms at seven months gestation. It was treated expectantly and settled down. The patient had a placenta prævia, and the child was stillborn. On the ninth day of the puerperium symptoms again arose, and myomectomy was successfully performed.—Miss IVENS recalled a case which three weeks before term induction was attempted by bougie for a contracted pelvis. Introduction of a bougie produced severe bleeding and it was withdrawn. At term Cæsarean section was performed and a large retro-placental clot was found. There had been no albuminuria in the meantime.—Mr. W. GOUGH (Leeds) related a case in which a fibroid the size of a hazel nut gave rise to such severe pain during pregnancy that operative treatment had to be undertaken. Myomectomy cured the condition.

Dr. HERD, in reply, said that there was an interval of 14 weeks between the operation of myomectomy and the onset of the albuminuria; he submitted that this was too long for the albuminuria to be due either to the necrobiosis or to retroplacental clot caused by the manipulation of the uterus. In this case the position of the degenerated fibroid would have obstructed labour even at the early period of 18 weeks gestation, so operation had been essential.

Mr. A. GOUGH (Leeds) described a case of

Pelvic Myxoma.

The patient, aged 35, was a multipara. She had noticed a swelling in the left gluteal region at least 12 years previously, and others had later formed in the abdomen, perineum, and vulva. Four operations had been performed between 1915 and 1924, during one of which the large gut had been damaged, necessitating a colostomy which only closed several months later. Menstruation was normal and the functions of the bladder and rectum were unimpaired.

There was a mass filling the left lower quadrant of the abdomen. The tumour could be traced over the pubis to the left labium majus, where it formed a huge pedunculated mass hanging down nearly as far as the knees. The circumference was 5½ in. in the upper part and 22 in. at the lower end; the total length from the pubes was 11 in. The overlying skin was thinned and purplish. The tumour could be traced backwards into the left buttock, where there was a mass the size of an adult head. The tumour was painless and felt spongy and elastic with some coarse lobulation. Vaginal examination was unsatisfactory, but the left side of the pelvis was felt to be full of growth continuous with the superficial masses and displacing the vagina and rectum to the right.

Complete removal was impossible. At the first operation the pendulous portion was removed at its origin at the level of the pubes; it weighed 5 lb. 1½ oz. Four months later the gluteal mass was removed. Cystic spaces were noted in both masses. Microscopical examination showed typical myxomatous structure. The cystic spaces were bounded by layer of condensed stroma, no epithelial lining being demonstrable.

The PRESIDENT said that it was very difficult to deal with these cases. He had operated on one of them several times. He suggested deep X ray therapy.

Mr. GOUGH said that he had discussed X ray therapy with a radiologist who had expressed the opinion that it was useless in these cases. Mr. Gough also described a case of a large solid ovarian tumour with twisted pedicle.

Mr. STACEY showed calculi removed from a case of complete procidentia.

Reviews and Notices of Books.

THE CONSERVATION OF THE FAMILY.

By PAUL POPENOE. London: Ballière, Tindall and Cox. 1926. Pp. 266. 13*s.* 6*d.*

THE reader is informed in a preface that this work is the sequel of another which was devoted to the problem of marriage as it confronts the individual in a private capacity. This book is held to supplement the first in that it is concerned with the things the individual cannot do for himself, but which it should be the duty of society to do for him. As is implied by the name, this book is eugenic in object. It is divided into four parts. In the first is described what the author holds to be the normal family—upon the conservation of which the future of America will depend. The ideal family is monogamic in constitution, and should be entered upon early in life by both parties. These should belong to strains exhibiting health, vigour, longevity, and socially valuable mental qualities. The children should number at least four, and in superior families the figure should be exceeded. In the second part of the book are described those conditions which in America interfere with the normal functioning of the family as previously described. Abundant statistics are furnished to support the contention of each chapter. Celibacy and the ascetic ideal are condemned as dysgenic. Figures indicating the prevalence of premarital incontinence, obtained from American undergraduates of both sexes, suggest that America is more fertile in material for the statistician of these subjects than this country. The breaking of homes, the frequency of which is measured by the number of divorces, is attributed in large part to the prevalence in America of the romantic ideal of love, which is held to have emanated from the Orient. To the exhaustion of this sentiment, which is expected to persist throughout conjugal life, is attributed the failure of so many marriages. Prostitution, delayed marriages, venereal diseases, infertility, abortions, inadequate reproduction among superior types, and excessive reproduction among inferior families are the subjects of separate chapters, and are held to oppose the conservation of the normal family.

The third part of the book deals with the methods of social control by which the family may be preserved. The education of adults to their parental responsibilities, and a change of public opinion with regard to childbearing and the family are the first of the necessary changes. In dealing with economic reforms, the author opposes the taxation of bachelors and childless married couples, the undiscriminating family wage, baby bounties, and maternity benefits. On the other hand, he favours a family allowance depending in magnitude upon the basal pay of the father. Thus, if an increase of 10 per cent. were made to the wages of a father of a family as each child was born, the artisan would receive a larger increment than the unskilled labourer. Such a graduated subsidy could never become a mere incentive to the socially useless members of society to multiply. It is said that this system is in effect among civil servant employees in Holland. Preferential employment for married men with children is naturally advocated; the author also propounds a scheme intended to counteract the tendency to late marriages among superior parents. It consists in an inversion of the usual method of life insurance. In the words of Dr. Noyes: "To enable picked individuals to marry earlier, why not reverse the ordinary policy of insurance in which a small sum is paid to the company for a long series of years, and at death a large sum is paid to the relation, and in its stead let the company advance the large sums first in quarterly or monthly instalments for a short series of years, decreasing gradually to nothing . . . and then let him pay into the company a small sum for a long series of years?" Lastly, the author advocates urban decentralisation, and the

migration of all who can afford it to the country and the farm.

In order to diminish the reproduction of inferior families, the author suggests that clinics be founded where the methods of contraception that are most approved should be taught. The grossly defective should be sent to farm colonies wherein the sexes are segregated, and which, under proper management, should be self-supporting. And the author would like to see courses in maternity and child welfare established for young women at American universities.

The book is marred in parts by careless writing, by a certain crudity of argument, especially evident in the selection of analogies, by which the author reduces to absurdity the contentions of his opponents, and by a tendency either to ridicule or to dismiss as unworthy of serious consideration views that do not assort with his own; but it is well-compiled, well-stocked with references to other works on kindred subjects, and is never dull.

FOOD AND THE PRINCIPLES OF DIETETICS.

Sixth edition. By ROBERT HUTCHISON, M.D., F.R.C.P., Physician to the London Hospital and to the Hospital for Sick Children, Great Ormond-street. London: Edward Arnold and Co. 1927. Pp. 610. 21*s*.

THE alterations in the new edition are few but important. Some account of the sippy treatment of peptic ulcer has been added, and the sections dealing with vitamins and infant feeding have been modified. Except for minor details the remainder of the text is unchanged. This book has long been a classic in the modern science of dietetics. First published in 1900, its origin was a course of lectures delivered to students of the London Hospital. At that time the subject of dietetics was almost wholly ignored in the curriculum, and even now, though isolated facts of food metabolism and the effect of deficient diets are taught, the student who is to be a successful practitioner must gain a better working knowledge of the preparation and value of foodstuffs than he will find in text-books of physiology, hygiene, or medicine. All that he needs he will find attractively presented by Dr. Hutchison.

FORENSIC PSYCHIATRY.

An Introduction to Forensic Psychiatry in the Criminal Courts. By W. NORWOOD EAST, M.D., Medical Inspector, H.M. Prisons, England and Wales. London: J. and A. Churchill. 1927. Pp. 381. 16*s*.

MANY medical practitioners may find themselves at a disadvantage when called upon to give evidence in the criminal courts upon the issue of mental disease. The text-books on insanity and mental deficiency seldom deal with points of practice and procedure, and often the prospective witness cannot spare the time in which to search a library. For his benefit Dr. Norwood East has put on record the experience he has gained during many years' work as medical inspector of H.M. Prisons and in constant appearances in the witness-box at criminal trials. He begins with two excellent chapters on Ascertainment and on Practice and Procedure which contain much information not readily to be found elsewhere. His readers will gather useful hints on how to deal with the stock questions of the cross-examiner, and they will be prepared also for those casual questions from the Bench—not necessarily relevant to the issue, often unexpected and occasionally disconcerting, as when a medical witness is suddenly asked by the judge to express an opinion upon the sterilisation of the insane.

The chapter on Criminal Responsibility is a careful and correct summary of the history and present condition of the law. Dr. East's official experiences and associations have led him rather to bridge than to widen the gap between legal and medical opinion. Without disguising the fact that the law often seems to lag behind the progress of modern medical science, he states his conclusion that the legal tests of insanity work no hardship to the accused because the law is not strictly applied. Like the late Dr. Mercier, he finds after prolonged study of reported cases remarkably few instances in which an accused person has been convicted upon evidence which appeared to justify acquittal on the ground of insanity. Dr. East goes so far as to doubt whether alteration of the law might not result in its less elastic administration and consequently in more obvious hardship to the accused. In subsequent chapters Dr. East classifies and expounds the several types of insanity. The illustrative cases are well chosen and are aptly and scientifically stated—needless to say, without the faintest trace of sensationalism. This book is the work of an expert, writing upon a subject which he has made his own, knowing what he wants to say about it, and able to say it clearly.

DISEASES OF INFANTS AND CHILDREN.

Second edition. By J. P. CROZER GRIFFITH, M.D., and A. GRAEME MITCHELL, M.D. London and Philadelphia: W. B. Saunders Company, Ltd. 1927. In 2 volumes. Pp. 1715. £4 10*s*. per set.

THE first edition of Prof. Griffith's comprehensive work on pediatrics, which appeared in 1919, has lately been out of print, and the author has produced an enlarged and revised edition in collaboration with Prof. Graeme Mitchell of Cincinnati. The form of the original work has been retained, but new material has been incorporated throughout the text, and a number of new articles have been included, the size of each volume being somewhat increased. Among the more notable additions are new sections on encephalitis, allergy, and spasmophilia, which are of the same high standard as the older parts of the book. The chapter on infant feeding has undergone some modification, and those on rickets and congenital syphilis are greatly amplified. In general the lines of treatment followed by the author in the first edition have suffered little change. The illustrations and colour-plates are, as before, a notable feature. This book should be of the greatest assistance as a work of reference for post-graduate students, to whom its value will be much increased by the comprehensive and well-chosen list of references to original papers. This list has been brought fully up to date, and forms one of the best bibliographies available on this subject.

MODERN PRACTICE OF PEDIATRICS.

By WILLIAM PALMER LUCAS, M.D., Professor of Pediatrics, University of California. London: J. and A. Churchill. 1927. Pp. 962. 30*s*.

THE increasing attention which the study of pedia-trics has claimed in recent years is evidenced by the quality as well as the quantity of the text-books which appear on this subject. Prof. Lucas's work, though it covers well-worn ground, has many distinctive features which will recommend it to the reader. It contains in one volume both a comprehensive account of the physiology and biochemistry of early life, and a clear and readable description of the clinical aspect of children's disease, with a very successful attempt to correlate the two.

The first part of the book is largely concerned with physiology and metabolism, and contains a remarkably clear account of involved problems such as arise out of the work of Finkelstein and Czerny. The second part is devoted more fully to disease, but pays special attention to the development of the child and to mental problems. The practical value of the work is increased by a chapter containing details of diagnostic and therapeutic measures, and by lists of references appended to each chapter. The latter would be of still greater assistance to the student if their precise connexion with the text were indicated by reference numbers. The volume may be recommended as an admirable text-book for senior students and practitioners.

A TEXT-BOOK OF BACTERIOLOGY FOR DENTAL STUDENTS.

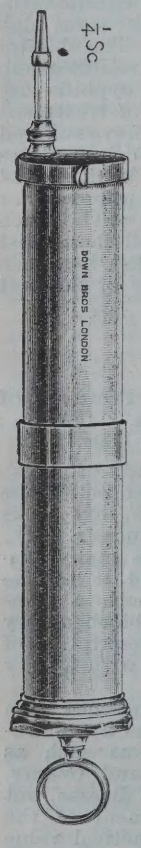
By ARTHUR BULLEID, L.R.C.P., M.R.C.S., L.D.S., Assistant Dental Surgeon and Assistant Bacteriologist to Guy's Hospital. London: Heinemann. 1926. Pp. 219. 15*s*.

IN his preface Mr. Bulleid states that the book has expressly been termed a text-book of bacteriology for dental students rather than a text-book of dental bacteriology. The distinction is important, for while it may be conceded that the dental student does not need to know the outlines of general bacteriology in such detail as does the medical student, yet a sound knowledge of general bacteriological principles is essential if he is to be able to understand the more limited bacteriology of the mouth. Many of the books on bacteriology written for dental students fail in this respect. Either they consist of a few severely abbreviated chapters on general bacteriology with a fuller account of the flora of the mouth, or else the book is devoted exclusively to the dental aspects of the subject. The latter type of book is justified if it be regarded as an advanced book for the specialist who has already a grounding in general bacteriology, but the former type is almost useless, for it fails to emphasise the general principles essential to a grasp of the application of such problems as immunity, infection, or inoculation to dental disease. Mr. Bulleid's book steers clear of these pitfalls, the balance being maintained between the general and the special aspects of bacteriology. Indeed, the medical student may find it useful, not as a substitute for the larger text-books, but as a supplement giving a clear account of the organisms of the mouth in their relation to dental disease. The chapters on cultural methods, staining methods, susceptibility, and immunity are all excellently written and convey clearly the chief points of importance. A fuller account of the principles underlying such a phenomenon as agglutination would have been welcome. We miss any reference to Besredka's views on local immunity; the more so since this has been made the basis of a special method of bacterial therapy for pyorrhœa. The book deserves a wide success.

New Inventions.

A SIMPLE METHOD OF BLOOD TRANSFUSION.

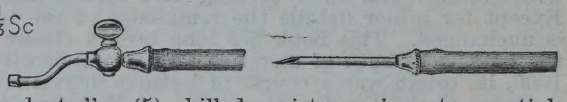
THE use of a large glass syringe was a big step towards simplifying the technique of blood transfusion. Glass syringes, however, are fragile, they lack perfect apposition of piston and barrel, and they are necessarily limited in capacity. Their disadvantages have been overcome in the method here described.



The apparatus illustrated consists of a metal cylinder (11¾ in. long by 2 in. diameter) which holds 1 pint; and there is a metal piston, and an excentrically-placed glass and metal nozzle. Rubber tubing is incorporated between the nozzle and the needle to act as a shock absorber. The nozzle should be sterilised with alcohol, but must be thoroughly dried before use. The rest of the apparatus is boiled. The piston is smeared with a minute quantity of sterile vaseline. When the syringe and needle are assembled, 2 drachms of a sterile saturated solution of sodium citrate are drawn in through the needle and allowed to play over the whole of the interior of the syringe. The air is expelled from the syringe and the needle is inserted into the donor's vein. An assistant aspirates whilst the operator holds the needle steady. When the syringe is full the needle is withdrawn. If a larger transfusion is required the needle, with attached tubing, is left in the vein, and the nozzle of the second syringe is attached to it. Alternatively, each of the syringes may be filled with blood from different donors. The syringeful of blood will keep unclotted indefinitely, and, if it has been allowed to cool, can be warmed by immersing it in hot water.

For infusion the syringe is held vertically, and any air driven out through the glass nozzle. A small needle, fixed into one end of a piece of rubber tubing, is inserted into the recipient's vein. When the blood runs out of its free end, the tubing is connected to the nozzle. The assistant then presses the plunger, forcing the blood into the vein. Owing to the large pressure that can be obtained, needles of small bore can be used. To withdraw blood, size 15 is recommended. For infusion, size 21 suffices—the size which is used as a routine in this hospital for the administrations of N.A.B. in antisyphilitic treatment.

The following advantages are combined in this method: (1) small quantity of encipient used; (2) the blood is the whole time enclosed in a sterile container; (3) ease and quickness of sterilisation—an autoclave unnecessary; (4) elimination of multiple



"gadgets"; (5) skilled assistance is not essential; (6) transportability; (7) ease of insertion of small needle diminishes number of times vein of recipient has to be cut down on.

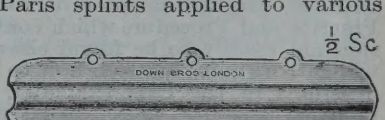
Using the Wolff's bottle method, I have had one case, seen two others, and heard of several more, in which it was necessary to expose the contracted median basilic vein of moribund patients, and it was found impossible to pump blood into the vein after the needle had been inserted. This tonic contraction is made worse by injury to the vein, and is seen only in gravely exsanguinated patients. It is hoped that it will be overcome by the increased pressure obtainable from the syringe. A series of different-sized cannulæ have been designed for the rare cases in which it is necessary to cut down on the vein. The cannulæ are fitted with stopcocks and have bulbous ends to allow of their being tied securely into the vein.

The apparatus was made for me by Messrs. Down Bros., Ltd., St. Thomas's-street, London, S.E.

R. R. MACINTOSH, M.R.C.S. Eng.,
Assistant Medical Officer, Venereal Diseases Department, Guy's Hospital.

A DEVICE FOR CUTTING PLASTER-OF-PARIS SPLINTS.

I HAVE been using with success in India for a considerable time the device illustrated here for cutting plaster-of-Paris splints applied to various parts of the body. The advantages claimed are: (1) it is simple and can be easily and cheaply manufactured; (2) its easy applicability to any part; (3) its lightness; (4) it is very easily applied by fixing it to the jaconette or lint or any other material which envelopes the part with a few stitches before applying the plaster bandages; (5) the rapidity and ease which a plaster case can be cut by interposing one or more of the plaster saws if it is desired to cut in one or more places.



A. F. WINNINGTON DA COSTA, L.M.S. Bombay, D.T.M. Calcutta.

THE LANCET.

LONDON, SATURDAY, JULY 2, 1927.

PROFESSIONAL SECRECY.

THE medical practitioner's obligation to secrecy depends not on legal sanctions but on the ancient tradition of an honourable profession. In our law courts the confidential relation of doctor and patient is cited as a thing well known and understood, but occasion has seldom arisen for it to be explained or enforced. The lack of leading cases on the subject is —as Lord RIDDELL observes in the address published on another page—highly creditable to the medical profession. If the traditional obligation had been frequently or flagrantly dishonoured, the law reports would have recorded the remedies which the judges would have felt obliged to grant. As it is, the law is definite upon a few points only. Doctors must notify infectious disease, for instance; they must certify the cause of death; and they cannot withhold their answers on any plea of privilege when required to give evidence by a competent court. But, apart from these and similar exceptions, medical secrecy though recognised in law is not founded on law. Indeed, it does not fit comfortably into legal theory. If the obligation of secrecy is part of an implied contract between doctor and patient, how are we to account for the obligation (equally strong) between a doctor and a hospital patient with whom he has no contractual relation? The analogy of the legal profession is not entirely satisfactory. A lawyer, in the sense that he may have to defend his client from a charge of murder, may be said to be concerned to save his client's life; but in general the services which a solicitor or barrister renders for the preservation of rights and property, important as they may be, are hardly of the same personal and individual nature as the services by which doctor or surgeon preserves health and vitality. A client would probably suffer less by asking his legal adviser for an opinion upon an abstract point of law than a patient by asking his medical adviser's opinion upon an abstract question of health. Legal professional secrecy is entitled to absolute privilege in a court of justice, the principle being based on the expediency of securing to everyone the full protection of the laws. It is equally expedient that everyone should have the full benefit of protection from pain and disease, yet the medical profession has no privilege. Clearly the relationship of solicitor and client is an imperfect and fallible guide to the legal position of doctor and patient.

But if the legal position is obscure, there is seldom any doubt in practice whether the doctor should observe reticence or disclose the information he has acquired, though, of course, it is no part of a doctor's duty to cover the tracks of a criminal. Lord RIDDELL has postulated certain cases for the sake of argument. In some of these it will be found that, if disclosure seems justifiable on ethical or social grounds, the medical practitioner's rôle is not to make the disclosure himself but to persuade the patient to make it. In cases of doubt, reticence should have the benefit of the doubt. Even in the witness-box where—as Lord BIRKENHEAD has so elaborately explained—the doctor is not allowed to refuse to reply to the questions of the court, he should make his respectful protest and strive to reduce to the minimum the information he is called upon to give. The court holds over him in the last resort the power to commit for contempt the witness who refuses to reply. But commitment is by no means inevitable. Thirty years ago (in KITSON *v.* PLAYFAIR) Mr. Justice HAWKINS stated that a judge might refuse to commit a medical man for contempt in declining to reveal confidences; "every case must be governed by particular circumstances." Lord Justice ATKIN observed the other day that judges should, and do, exercise a reasonable discretion in enforcing disclosure or not. He emphasised the known difficulty of ensuring satisfactory treatment of venereal disease in the absence of an absolute guarantee of secrecy. As is stated in "The Conduct of Medical Practice," it is the patients and not their medical advisers who would derive advantage if the revelation of medical secrets in the witness-box were prevented. It is strange that the public has never insisted upon a change in the law and upon the establishment of an absolute duty of medical secrecy in the law courts—a duty which would be by no means repugnant to the medical profession.

PUBLIC HEALTH IN SCOTLAND.

THE annual report[1] of the Scottish Board of Health for 1926 contains, as usual, much interesting matter. Reference is made in its several chapters to all the activities over which the Board exercises supervision, including national health insurance, Poor-law administration, old age pensions, welfare of the blind, and so forth, in addition to that part of public health administration the executive control of which is in the hands of local authorities. This is not a dry-as-dust blue book, but a readable account of statistical and administrative facts, with occasional reflection on their significance.

One of the most striking features of the mortality statistics of Western Europe in recent years has been the steady decline in the death-rate from tuberculosis, and nowhere has this tendency been more marked than in Scotland. The death-rate per 100,000 living has fallen from 160 in 1916 to 99 in 1926, the corresponding rates for the pulmonary form alone being respectively 107 and 69. At first sight it appears to be significant that the period of most rapid improvement in this respect coincides with that of increased effort specifically directed against the disease, in the form of comprehensive anti-tuberculosis schemes. The direct influence of such schemes has been questioned by statisticians, who have no difficulty in demonstrating that the tuberculosis mortality had begun to fall long before sanatoriums were erected or tuberculosis officers came on the scene, and the facts, as they accumulate, certainly give us reason to pause. BROWNLEE'S well-known work on the local variations in the age-distribution of the deaths from tuberculosis indicated that some forces not consciously directed by man were the controlling factors, and BIRAUD'S recent investigations of international records[2] strengthen this suspicion. It is, perhaps, significant that while some towns in England of comparatively recent growth, with sanitation and amenities rather above the average, show an unfavourable trend in the relative mortality from tuberculosis, the position

[1] H.M. Stationery Office. Cmd. 2881. Pp. 379. 6s. 6d. post free 7s.

[2] Preliminary Report on the Causes of the Recent Decline of Tuberculosis Mortality. By Yves M. Viraud, M.D., Health Organisation, League of Nations. C.H. 291. 1925.

in Glasgow, a city which underwent its maximum rate of growth and immigration in the years succeeding the industrial revolution, is improving rapidly. It is justifiable to infer that the mortality from tuberculosis falls, and the force of its blows are felt at later ages, among those especially who have become inured to industrialism and town life. Unfortunately, as the report of the Scottish Board of Health shows, the statistical evidence is not easy to interpret in Scotland, for the very towns in which we should expect these national influences to be most powerful are also those which have carried on the most vigorous campaign against the disease; the organisers of these specific measures may reasonably claim that their influence has been far from negligible. Certain tenets, at least, which had become almost axiomatic in relation to tuberculosis, seem, in the light of Scottish experience, to be open to doubt. Evil housing conditions, overcrowding, and financial insecurity have been blamed for much of the excessive tuberculosis mortality in towns, and yet we find the latter falling at an accelerated rate during a period when industry has been passing through one of the gravest crises in Scottish history, and house-building, as the report shows, has barely kept pace with the increase of population.

Allied to the question of tuberculosis is the system of control of the production and handling of food, and especially of milk, to which an important section of the report is devoted. It is evident that in their efforts to obtain the appointment of whole-time veterinary inspectors, the Scottish Board have been more successful than the English Ministry. There can be no doubt that the effective operation of the Tuberculosis Order and the Milk and Dairies Acts of the two countries must depend largely on the number and efficiency of the whole-time veterinary inspectors appointed to exercise their powers. There is a notable contrast, too, in the policy of the two central departments as regards the control generally of the milk trade. In Scotland the Board, while exercising vigorous supervision over local authorities, has issued orders dealing only with certain aspects of milk inspection, the rest being covered by local by-laws. Licences for the production and sale of all grades of milk are issued by local authorities in Scotland. In England and Wales, on the other hand, the Ministry have withdrawn entirely the power of councils to make by-laws, and have retained in their own hands the licensing of producers of the higher grades of milk. It remains to be seen which policy will lead to more rapid progress and sounder administration, but it seems likely that local authorities and their officers will take greater interest in the operation of their own by-laws than in that of regulations imposed upon them from above.

The incidence and fatality of the epidemic diseases have usually been higher in Scotland than in the southern parts of this island, and it is perhaps, therefore, no matter for surprise that medical officers in that country should have been quicker to apply the modern methods of immunisation against diphtheria and scarlet fever which have been evolved in America. An important experiment at Aberdeen in combined immunisation against scarlet fever and diphtheria by means of one course of inoculations deserves careful attention, as it is obvious that the chance of such prophylactic measures finding acceptance with the public must be seriously diminished in proportion to the frequency with which they require to be applied. The hospital problem has continued to be a subject of active concern. It is gratifying to learn not only that the voluntary hospitals have emerged successfully from their period of financial stress, but also that the central department is not disposed to rest content with a position of stabilised solvency so long as the grave shortage of beds remains. Reference is made to the report of the Hospital Services (Scotland) Committee of January, 1926, known as the "Mackenzie Report," which arrived at the conclusion that Scotland required 3600 beds for general hospital work (including maternity and sick children) and recommended that, while 3000 beds should be found, if possible, by voluntary effort, 600 might with advantage be provided by local authorities for children and women in childbirth. The report further advocated transference of the Poor-law hospitals to local health authorities, and coöperation with the voluntary hospitals in their management. These recommendations are already bearing fruit. Thus, in Falkirk and Stirling, where new voluntary hospitals are projected, the local authorities are proposing to finance the construction and management of maternity wings. Still more interesting is the experiment on foot in Aberdeen where the Council have taken over a detached Poor-law hospital, and are proceeding to manage it in coöperation with the university and the voluntary hospitals.

Generally, the report of the Scottish Board of Health reflects the characteristically energetic and practical manner in which public health administration is conducted in that country. The health departments are obviously concentrating on the solution of problems which have been a reproach to the people ever since the public health conscience was aroused. While the burden must fall most heavily on the local authorities and their officers, much of the credit for the success of their efforts and for their progressive outlook is undoubtedly due to the able and far-seeing guidance of Sir LESLIE MACKENZIE and the medical staff of the Scottish Board of Health.

SMOKE ABATEMENT.

THE Public Health (Smoke Abatement) Act of 1926 came into force on July 1st, too late to enable urban folk to see the eclipse, although the familiar depression "west of Iceland" effectually clouded the sky for most of the country without the help of chimneys. The Act is not the thorough-going reform which the most progressive public health workers would have liked, but it tightens up the law in a number of useful ways. "Smoke," for instance, will in future include soot, ash, grit, and gritty particles for various purposes of the Public Health Act of 1875; and smoke emitted from a chimney (not being the chimney of a private dwelling-house) will be a nuisance for the purposes of Sections 91 and 94 and other parts of that Act, even though it is not black smoke. Penalties under the Act are increased, the maximum being raised from £5 to £50, and the Alkali, &c., Works Regulation Act of 1906 is extended. Two of the most important of the new provisions are the power to prescribe standards in respect of smoke emission and the power to make by-laws respecting cooking and heating arrangements in new buildings. Local authorities have already been feeling their way towards the prescribing of standards; this practice will now be put upon a legal basis. The Ministry of Health intimates that by-laws as to standards should be made in every considerable industrial district. It may not be feasible as yet to apply standards to other than black smoke, but it

will be possible to adopt the form of by-law (of which certain districts have already made trial) which provides that it shall be presumed a nuisance if black smoke is emitted for two minutes in the aggregate within any continuous period of 30 minutes. In London the county council, and elsewhere the borough or urban district council, will now have the right to require such arrangements to be made in new buildings as to prevent or reduce the emission of smoke in the course of heating or cooking. But the expression "new buildings" in this connexion, though it will include clubs and hotels, expressly excludes the private dwelling-house which is responsible for a large share of the polluted atmosphere of our cities. The Ministry, in a sort of apology for allowing the private dwelling-house to escape, has pointed out that both local authorities and private builders nowadays instal methods which tend to reduce the smoke nuisance; it suggests that all possible opportunities should be taken to impress upon householders that the needless emission of smoke can be diminished, but it does not explain how this object is to be attained. Lectures and advertisements, it seems, must supply the place of penal clauses. The new Act has a general exemption for all sea-going ships, and it extends (subject to cancellation by Provisional Order) the old exemption for mines and specified metal processes, so that that exemption will now cover the processes of reheating, annealing, hardening, forging, converting and carburising iron and other metals. Another new and probably troublesome loophole is the statutory defence (on proceedings for sending forth smoke, other than black smoke, from a chimney in such quantity as to be a nuisance) whereby the defendant will be allowed to escape if he shows he has used "the best practicable means for preventing the nuisance, having regard to the cost and to local conditions and circumstances."

The London County Council in its annual report provides some new material for consideration. For several years the Council have kept up observations for the Advisory Committee on Atmospheric Pollution. These observations have been extended in directions more immediately bearing upon health, the results of which are presented for the first time in the report of the medical officer of health for the County of London, which is summarised on another page. The *flèche* of the County Hall has made an excellent view-point for measuring horizontal visibility, and observations are continuous for week-days since September, 1923. The actinic power of the light has been measured by the number of seconds taken to turn a standard paper to a given tint. The method of measuring atmospheric impurities by the collection of the deposits of rain-gauges is only an index of impurities in the atmosphere at times immediately preceding rainfall. For this reason the automatic filter records made by Dr. J. S. OWENS'S instrument, which measures the dirtiness of the air by the shade of blackness imparted to standard filtering paper on filtering definite volumes of air through it, were included in the observations. The three years' records gave the following results: During the summer months (June to August) horizontal visibility was 5·6 miles; during the spring months (March to May), 2·5 miles; during the autumn months (September to November), 2·6 miles; and during the winter months 0·9 miles. During the summer months the light took 17 seconds to turn the standard paper; during the spring months, 36 seconds; during the autumn months, 38 seconds; and during the winter, 63 seconds. The blackening of Dr. OWENS'S filter paper for the summer months was 0·6; for the spring months, 1·0; for the autumn months, 1·1; and for the winter months, 1·4. The monthly variations for each of the three sets of observations are shown in tables and graphs. The shape of the areas of visibility is shown by means of maps with concentric circles a mile apart. In these maps bulges of extended visibility occur in one direction or another, generally towards the quarter from which the wind is blowing. Put in another way, the average area of visibility in London at noon is about 50 times greater in the summer than in the winter and about five times greater in the summer than in the spring and autumn. Further the actinic power of the light is three times greater in the summer than in the winter and twice as great in summer as in spring and autumn. Lastly the amount of dust and tar in the air is three times greater in the winter than in the summer and nearly twice as much in the spring and autumn as it is in the summer. On these findings Dr. MENZIES makes the following comment: "While these seasonal changes in visibility and actinicity are due largely to natural conditions lying wholly outside of human control, there can be no question that coal smoke, which is the main factor in the varying seasonal changes in the filter tint, is an important and aggravating factor in the screening of actinic light, and in intensifying the obscuration arising from the seasonal atmospheric changes to which London is subject by reason of its situation in the valley of a large river."

The value of the new Act will depend, as is so often the case, upon its local administration. Regional committees can study a common smoke problem; local authorities can form joint committees for the discharge of smoke abatement duties, and can also (singly or in combination) undertake investigations and research into atmospheric pollution and its possible remedies. It is desirable that the officers of local authorities should take advantage of special courses of training, and it may be found possible for specially trained officers to help groups of local authorities. The new Act directs that officers duly authorised by the local authority to act in that behalf must, if they consider that a smoke nuisance exists, notify the occupier of the premises forthwith and confirm the notification in writing within 24 hours. This provision is intended to facilitate coöperation between the local authority and the industrial interests within its district. It is a step in the right direction. Not much can be hoped from the Act unless such coöperation can be established.

UNIVERSITY OF LONDON.—The purchase of the Bloomsbury site by the University from the Duke of Bedford was completed on June 24th. The site, including roads, comprises about 11½ acres bounded by Montague-place, Malet-street, Gordon-square, Woburn-square, Upper Montague-street, and Russell-square, and is the site originally bought by the Government for the University and sold back to the Duke in April of last year. The purchase price is £525,000. Of this sum £400,000 has been provided by the donation from the Rockefeller Foundation and £125,000 is derived from a special Government grant in respect of improved accommodation for the University.

BIRMINGHAM HOSPITAL SATURDAY FUND.—Another "record" has been established by this Fund, the total receipts amounting to £53,025 19*s.* 11*d.*, thus beating the previous highest total of £52,287 last year. This is the more remarkable as in view of the industrial troubles of the past year it was feared that the Fund would suffer. The hospitals council has been giving a great deal of consideration to the formulation of the contributory scheme, already referred to in our columns, which is making satisfactory progress.

Annotations.

"Ne quid nimis."

OPTICIAN AND OPHTHALMIC SURGEON.

Two months ago we made some allusion in a leading article[1] to the problems before the Departmental Committee which was sitting to consider the Optical Practitioners (Registration) Bill. This Bill has now been refused a second reading in the House of Commons. The Departmental Committee, however, is still sitting, and is expected to report on the whole subject. The Committee will have before it a memorandum from the President of the General Medical Council, which was approved at the recent session of the Council and may be read in an appendix to its minutes. The attitude of the Council is unchanged from that which it has always maintained. They regard it "as most undesirable in the interests of the public and highly dangerous to the community that persons who have not had a complete medical education should be authorised by law to deal with matters which require knowledge which is pathological or medical, or both." The document then goes on to justify this view by quotations from a statement made at the President's request by Mr. H. L. Eason. "We are prepared to admit," he says, "that where no doubt can exist that the defect is merely an error of refraction, the task of prescribing the requisite glasses should not be beyond the skill of an optician who has undergone the course of training and passed the examination required by certain of the opticians' organisations." He goes on to point out two main considerations which tell strongly against the view that opticians should be officially recognised as qualified to prescribe glasses.

The first point is that in no instance is it possible to certify that the case is one of simple error of refraction without an ophthalmoscopic examination. The second is that it would be unwise for the State to grant recognition to a body of persons who make their living by a special method of treatment and by the sale of special apparatus. In our opinion, the General Medical Council are doing well in attempting to focus the attention of the authorities and of the public on these two points. The prescribing opticians, it is true, claim that those to whom they propose to grant certificates will be well qualified to detect any abnormality visible with the ophthalmoscope, and those who take the trouble to refer to their journal —the *Optician*—will find frequent references to the high standard of training which is now offered to opticians at their "refraction hospitals." To this the answer we would make is that this is not enough. The eye is only a part of the body. To undertake the diagnosis and treatment of its abnormalities and diseases a complete medical training, as well as a special training in ophthalmology, is essential, and it is to the advantage of the public that this should be understood. Take the apparently simple case of prescribing glasses for presbyopes. It need not be questioned that, so far as the immediate requirements of the middle-aged patient goes, opticians can satisfy them in the majority of cases. On the other hand, it must be remembered that there are certain conditions, more or less common in those past middle age, which the ophthalmic surgeon or physician is capable of recognising, and which the trained optician is not. One is incipient chronic glaucoma. Another is abnormalities in the retinal vessels which may point to the necessity of examination of the blood pressure or of the urine. A third is minute retinal hæmorrhages, which may be an indication of septic poisoning arising from some organ far distant from the eye. A fourth is slight lenticular opacities which may or may not be progressive. Frequently they are not.

[1] THE LANCET, April 23rd, p. 880.

In reply to this it may be said, and the *Optician* is very fond of saying it, that the average general practitioner is profoundly ignorant of the eye. In so far as this is true the practitioner is aware of his ignorance, and does not profess anything else. Moreover, this by no means applies to all general practitioners, some of whom possess sound ophthalmic training. The number of those eye specialists and doctors possessing special ophthalmic experience who are now on the "ophthalmic panel" for Great Britain amounts at present to over 800, and if the demand for this special service is sufficient there is no reason why the number should not be increased. Mr. Eason's second point is said by the *Optician* to be a new one, but in fact it has frequently been pointed out before. It is simply that those who prescribe glasses ought not themselves to have a direct interest in their sale. How often have we not seen young people with normal refraction wearing +0·5 D. sphericals purchased from an optician? It is the fashion to laugh at the busy practitioner who supplies his ordinary patients with a bottle of medicine. The unfortunate young clerks and typists who have paid an optician £1 or so for +0·5 D. in fashionable frames would probably have done better to have gone to their panel doctor, for what in many cases they need is a holiday. If the prescribing optician succeeds in his endeavour to monopolise the administration of "ophthalmic benefit," we shall find—it can indeed hardly be otherwise—an increasing number of young men and women wearing glasses for their work without really requiring them. It is this danger to the public which is emphasised in the memorandum of the General Medical Council. The Council's objection is based on principles which apply not only to opticians, but to any class of tradesmen or practitioners who make their living by a special method of treatment.

THE HUNTERIAN MUSEUM.

IN his annual report on the Museum of the Royal College of Surgeons, which has just been issued, Sir Arthur Keith, the conservator of the Museum, mentions that the new specimens added during the year will be on view in Room I. from Thursday, July 7th, until Saturday, July 23rd. Among the additions are many specimens of more than ordinary interest such as a myoma malignum of the uterus —a tumour which, microscopically, has all the characters of a simple myoma, but invades the blood-vessels after the manner of a malignant growth; Paget's disease of the nipple in a stage anterior to the development of a definite carcinomatous tumour; a dissected specimen of bilateral congenital dislocation of the shoulder in an adult; and a large aneurysm of the middle cerebral artery from a case of stenosis of the isthmus aortæ. There is also an interesting group of specimens of thoracic neoplasms, including fibroma, fibromyoma and endothelioma of the pleura, primary carcinoma of the lung, teratomata of the mediastinum, and specimens showing the later results of gunshot injury of the lung. The series of Special Pathology is now being re-catalogued and rearranged, and the Curator proposes to take the opportunity to make the collection more complete as regards the commoner lesions of the body. The value of the Museum for reference in the case of rarer lesions is well recognised, but a large number of students use it as a teaching museum, and donations of examples of the more common lesions would be welcomed; a list of specimens required is available for those who are willing to interest themselves in this matter. The report of Mr. R. H. Burne, F.R.S., the physiological curator, contains a reference to his investigations on the lymphatic system of fishes; he has made the interesting observation that there exists a system of vessels which pour their lymph into the peripheral network of lymphatic spaces, this being drained by lymph vessels of the ordinary sort; the lymph system, therefore, like the blood system, possesses both arteries and veins. During

the year the Conservator has been actively engaged in reporting on many discoveries of human remains, which in several instances have been added to the collection. Among the more important discoveries on which he has reported are the following: for the British Museum, a collection of skulls from Ur of the Chaldees; for the Torquay Natural History Society, a human skull found near the entrance of Kent's Cavern; and for the British School of Archæology in Jerusalem, a report on the Galilee skull. Much progress appears to have been made in the preparation of the catalogue of the collection of human skeletons, one of the largest departments in the Museum; in this work the Conservator has for some years had the assistance of Miss M. L. Tildesley, who contributes a separate report on the progress of the work. As we announced at the time,[1] the greatly extended odontological room was formally opened on May 23rd by the President, Sir Berkeley Moynihan, in the presence of the members of the Odontological Section of the Royal Society of Medicine, who, with the Zoological Society, have recently made numerous valuable donations to the collection. The whole collection has been rearranged by the honorary curator, Sir Frank Colyer, and is now much more accessible for the purposes of study. Appended to the annual report is a list of publications connected with the Museum, the results mainly of research which is actively promoted there. The number of visitors and students who used the Museum during the year was 7578; the requests from teachers of ambulance and science classes for permission to visit the Museum on Saturday afternoons, accompanied by their pupils, continues to increase, the yearly total of students attending on these occasions amounting to over 3500.

A SYRINGE FOR BLOOD TRANSFUSION.

TRANSFUSION of blood is now so frequently and generally employed that any simplification of technique is to be welcomed. In our present issue (p. 22) Dr. R. R. Macintosh describes an apparatus which seems to combine simplicity with efficiency. The only difficulty that we can foresee is that the later part of the blood drawn into so large a syringe might not be well enough mixed with the citrate solution to prevent partial clotting. The formation of even a very small clot would result in blocking of the nozzle. Probably this is avoided by using an excess of citrate, such as is contained in 2 drachms of a saturated solution. The necessity for this would be regarded by some as an objection to the method, but the apparatus will commend itself to those who are not influenced by that consideration. For medical uses the syringe should prove particularly useful, as it is more common in medical practice to give frequent transfusions of relatively small amounts of blood.

MEDICINE ON A MODERN LINER.

THOSE who go down to the sea in ships can do so with increasing confidence that if they should need medical attention they will get it. Now that the large Transatlantic and other steamship companies have begun to offer their medical officers adequate pay, a sufficient staff, and first-class equipment for the care of the sick, their passengers can rely on the service of cautious and capable surgeons, no less brilliant, although perhaps less erratic, than the traditional ship's doctor. At the invitation of the Canadian Pacific Railway our representative visited last week the refitted *Empress of Australia*, a vessel of 21,850 tons displacement, 615 feet long, with a beam of 75 feet, oil-fired engines of 10,000 h.p., and a sea speed of 18 knots, running up to over 20 at a recent trial. The vessel possesses all the luxuries of the sea, attractively decorated saloons, writing-rooms, lounges, a gymnasium, and a swimming bath, as well as nurseries, and very comfortable cabins for both first- and third-class passengers. The whole ship is ventilated by fresh air supply, and every cabin and other space is heated by electric radiators. The medical equipment leaves little to desire. The medical officer has a large and attractive cabin, next to which is a waiting-room for patients, and beyond that the operating-room. Here are seen the first-class passengers and hither are transported all requiring surgical treatment from other parts of the ship, crew or passengers, who are first seen in the dispensary, which is forward, and on the deck below. The operating-room is well equipped with table, sinks, sterilisers, lights, and instrument cupboards, also an incubator, and good work can and has been done here. Below is a hospital for the third-class passengers and for the crew, six beds in two tiers for men, each of whom is allowed an iron locker for his effects; a bed-pan locker, bath, w.c., filter (Chamberland pattern), a fan, and an electric heater, as well as a mess place. Outside is a cabin for the two hospital attendants, and in the passage is a telephone by which the doctor can be quickly found wherever he is. On the adjacent female side there are also six beds with equally satisfactory equipment, and another, curtained off and wider, for a labour case. Our representative found the infectious section the best he has seen. Set up upon a large poop, completely cut off from the people of the ship, it has a nominal capacity of 14 beds, but these can be increased. They are in five sections, women to port, men to starboard. There is no suggestion of skimping about this place, or of makeshift, but the baths (fresh water, hot, cold, and shower) and the water-closets are just as good as elsewhere in the ship or better. Fans, radiators, filter, telephone, fire extinguisher, everything is complete, a steam disinfector not forgotten. The infectious diseases most apt to cause trouble are measles, chicken-pox, and diphtheria, but luckily they rarely all appear together. Dr. Gardner, the staff surgeon, finds no difficulty in carrying out the necessary microscopical work on board. The cabin accommodation is, for all classes, very good, an electric bath and radiant light bath give comfort to travellers with rheumatism on their way to healing springs. There is a laundry which can wash 5000 pieces of linen a day; but this ship burning oil makes less demand than most on the linen we carry with us. Cooking is done with coal, baking by electric mixers and electric ovens. There is a steam dish washer, a travelling grating carries the dirty cup or plate into a chamber where fierce, fine jets of steam clean it thoroughly, and it is delivered dry and shining to be put away. The rotary plate cleaner in the first-class pantry takes into little boxes the plate, soap, and a myriad of tiny soft lead balls (like shot but not hardened with antimony); this mixture being heated and revolved together the plate comes out clean and polished.

The accommodation for the crew is distinctly good, though bunks are still arranged along the ship's side, a danger in case of collision. There are many mess places and all are good. The dressers or sideboards are all of metal, probably steel, galvanised; this is to diminish insect infestation. Each man has a steel locker for his clothes, and cubic space probably in excess of standard. The washing basins of the men, as we had occasion to note in another ship recently, are not made with good enamel, consequently they will never look clean. When there are hot water supplies all over the ship elsewhere, it seems wrong that hot water should not be supplied for the crew, who certainly need it. A great advance is that there is a man whose duty it is to keep these annexes in order. The company provides holders, too, for latrine paper rolls, but does not seem to provide the rolls, judging by the litter of torn newspaper over the floor. The recent improvement in these places in ships is surprising; 15 years ago it would have seemed hopeless to expect a seaman to have a self-flushing closet, with plentiful headroom, no difficult corners to clean, daylight, forced ventilation, a basin and a fresh-water tap alongside him. Wonderful have been

[1] THE LANCET, May 28th, p. 1142.

the changes since Dr. Collingridge's paper appeared in our columns on May 5th, 1894.

Apart from the medical arrangements with which we are primarily concerned, there was mention of new navigational aids, wireless direction-finders, giving a position within a degree, and a hydraulic gauge to tell the bridge what the draught of the ship is without going over the side to learn it. There was also talk of Atlantic Park, a hostel at Eastleigh, where the company assembles and cares for its transmigrants from Europe to Canada. Everything is thought out, everything is planned for their comfort, in the hope they will come again. The ship and her crew appear worthy to represent the British Merchant Marine in carrying, on her next trip, the Prince of Wales and the Prime Minister to the Overseas Dominion.

THE DANGER OF IRRADIATING MILK.

AN editorial article in the *Journal of the American Medical Association* for May 7th points out the danger of rashly irradiating foods in order to increase their content of vitamin A. The danger is a real one and is of particular importance where milk is concerned. It is true that the antirachitic value of milk can be significantly improved by exposing it, in the liquid or dry state, to the action of ultra-violet light, and rickets has been cured in children by the administration of such directly irradiated milk. As a vehicle for the administration of vitamin D, irradiated milk might in certain cases find a use, but as a complete food for infants its employment is undesirable. Apart from the unpleasant taste which irradiation imparts to the milk, there is no security that certain of the vitamins which it contains may not have been destroyed. As long ago as 1919, S. S. Zilva [1] investigated the action of ultra-violet light on the vitamins A, B, and C. The two last he found were little if at all damaged, but vitamin A in butter, for instance, was completely destroyed under the conditions of the experiment, owing to formation of ozone by the ultra-violet light waves. Conditions might be so arranged commercially that the destruction of vitamin D did not take place, but many safeguards and tests would first be necessary before the product could be safely used. Meanwhile direct irradiation of the cow or feeding her with cod-liver oil seem safer methods to use, for at any rate the milk is not thereby, as far as we know, robbed of anything nor is it rendered unpalatable. The case is different in regard to older members of the community, who consume a mixed diet in which the vitamin A is obtained from a variety of different sources; in countries with long sunless periods, for example, there might be scope for some one irradiated article of diet to supplement the vitamin D in the ordinary dietary.

ORTHOPÆDIC SOFTENING OF BONES.

IN the May number of the *Jahrbuch für Kinderheilkunde* Dr. Carl Rabl describes a method of softening children's bones before correcting their deformity by orthopædic measures. The softening is produced by local and general acidosis; local acidosis is promoted by the application of a rubber bandage so as to cause congestion of the limb, whilst general acidosis is obtained by giving ammonium chloride by the mouth. In 8 to 18 days, it is stated, the bones are so soft that they can be bent and the deformity corrected. In metabolic experiments it has been shown that if marked acidosis is produced a considerable loss of calcium occurs after the second or third day. The calcium must be drawn from the bones, as other organs contain relatively little and are slow to part with it, and it is on this fact that the method depends. The most intense local acidosis is obtained when administration of ammonium chloride is combined with energetic local congestion. The detail of the technique needs close attention and this form of treatment is still in the experimental stage. The greatest difficulty is to obtain the right degree of compression; the limb must become slightly cyanosed (blue-red) but must remain warm, and the bandage is applied for about 20 hours daily. The dose of ammon. chlor. is 0·2 g. per kg. of body-weight per day. It is given twice daily in 4 per cent. solution in syrup. Larger doses have been given by other workers, but Dr. Rabl thinks them risky. During the period of softening, all antirachitic foods are carefully avoided and the child is protected from sunlight, though complete darkness is unnecessary. The correction of the deformity is carried out under narcosis and is not always easy, the bones being so elastic that it is necessary to over correct and put up the limb in plaster. The tendency to recurrence remains for a long time and it is only after three weeks that the splints can be removed for a few hours at a time. Antirachitic treatment is started energetically immediately after operation. No investigations indicating the degree of acidosis produced by Dr. Rabl are reported, but it is stated that no serious symptoms occur and that recovery is rapid. The most suitable cases for treatment are children under 2 years old. In Dr. Rabl's opinion the softening of the bones associated with acidosis is not identical with the softening of true rickets or osteoporosis, and he discusses their relationship.

[1] Biochem. Jour., 1919, xiii., 164; and 1920, xiv., 740.

AN OPPORTUNITY FOR PHARMACISTS.

THE last quarter of a century has witnessed fundamental changes in methods of diagnosis and treatment. These changes are reflected in the radical alterations in the training of medical students which, in contrast with the system that was practised in the days of our grandfathers, is now based upon a new science. The application of physiology, X rays, blood counts, bacteriological tests; salvarsan, insulin, throat swabs, pituitary extract, sera, and vaccines—all these are things that belong to a newer school. It is, we think, common ground that pharmacy, which has been called the handman of medicine, has not kept pace in the march of medical progress. Great improvements have been introduced into the pharmaceutical curriculum, and the present-day pharmacist receives a better technical training than was usual even 10 or 20 years ago, but it is admitted that the educational scheme in the case of pharmacy has not undergone a major operation of anything like such a drastic character as that to which medical training has been subjected. The division of a qualifying examination into two parts, and the requirement of evidence that a student has been educated rather than coached, are all to the good, but they cannot be styled as far-reaching. According to Dr. J. H. Burn, director of the Pharmaceutical Society's Pharmacological Laboratory, the pharmacist "remains content to busy himself with the dispensing of those remedies which are for the most part rapidly ceasing to be regarded as of serious medical value, and it is urgent that he should realise that by doing so he is continually lessening his national importance." The occasion on which this was said was the sixty-fourth annual meeting of the British Pharmaceutical Conference, which was held at Brighton last week, and the context is a paper in which Dr. Burn endeavoured to show the need for adaptation to changed conditions. The Pharmacopœia, he says, is notoriously out of date, yet it has been allowed to control the pharmacist's training. We are not quite so certain as Dr. Burn that the time has come to scrap the Pharmacopœia or that the new science has advanced far enough to replace it. But that is not the point with which we wish to deal. Dr. Burn's object, we take it, was to demonstrate the desirability of adapting pharmaceutical training to medical progress. He says, in effect, if a patient goes to a medical consultant he will find that very often the consultant forms his opinion of the patient's condition as a result of several examinations he makes or arranges to have made: X ray examination, blood examination, and a bacteriological

examination. Here, he thinks, is work for the pharmacist, yet there is nothing, or very little, in the pharmacist's training to fit him to do this work.

To remedy the deficiency courses should be instituted so that students could be thoroughly trained in such processes as sterility tests, the preparation of vaccines, the examination of throat swabs, and so on. There is no doubt much to be said in support of Dr. Burn's ideals, but the average pharmacist may think them too lofty for practical purposes. Perhaps the most cogent argument in his favour was the one used by the secretary to the Pharmaceutical Society who, in the course of the discussion which followed the reading of the paper, said it was the function of the pharmacist to provide any medicinal agent which might be required by a medical practitioner. We are not in the secrets of the pharmaceutical authorities, but it seems significant that both the Society's secretary and one of its chief scientific officers should show by public utterances that they are in favour of providing means to equip pharmacists for this new work. Unfortunately, the idealists will find very little active support and no enthusiasm in the rank and file. We say this on the evidence of a pharmacist who is in close touch with members of his calling. The small, very small, band of pharmacists who have fitted themselves for work of the kind which Dr. Burn has in mind have had very little encouragement to go on with it. Some of them have found work to do, but when they were just getting into their swing a county council or some other public body has relieved them of their task, and, indeed, the general tendency in this matter seems to be towards centralisation. The subject is not a new one; we discussed it in these columns some two years ago, and can now see no reason to alter the conclusion we then reached that at some future time we shall probably see two classes of pharmacist—the one class with lip sticks as a "side line," to use an expression familiar to the confraternity, and the other composed of the poor but faithful sons of Galen.

THE STEPHEN PAGET MEMORIAL LECTURE.

Stephen Paget was associated so closely with the activities of the Research Defence Society that a lectureship endowed in his name is a fitting memorial. The first Stephen Paget memorial lecture was given on June 21st by Mr. Julian S. Huxley, until recently professor of zoology in the University of London. Mr. Huxley has recently relinquished his chair in order to devote all his time to the interpretation of scientific facts and advances to the general public, and he has started his new career well in expounding at the outset the value of research to the community. The scope of his lecture included a review of the relations of animals and plants to their environment and of the dangers of introducing either to new countries without careful consideration of the possible consequences. The upset of the balance maintained by the normal checks to multiplication and spread of any species in its natural setting might be followed by disastrous results. On the other hand, efforts to exterminate animals or plants that were found to do damage must be undertaken only after careful study of their prey or habits of growth, since some other worse pest might become manifest without their restricting influence. The economics of the transport and acclimatisation in different countries of medicinal or edible plants were discussed in even greater detail recently by Dr. A. W. Hill in a lecture given at the Royal Institution. Both lecturers made it clear that agricultural research is a paying proposition for any nation, and even the most conservative and dogmatic of "practical farmers" benefits indirectly from the modern work on heredity and parasitology which he still affects to despise. A more delicate matter is the need to convince the public that experiment as well as observation is required for the progress of medical science. Prof. Huxley cited examples of benefits to mankind and to animals that had resulted from experiment, recalling the testimony of Pasteur and Lister and quoting modern instances such as insulin. Finally he pointed out the relation of experiments on animals to the control of animal diseases such as rabies, anthrax, and glanders. The Research Defence Society should not be looked on as a body merely organised to resist attack on the essential methods of medical research, but as a body prepared to fight actively against ignorance and apathy.

ETHYLENE AND CARBON MONOXIDE.

TOXIC symptoms following the inhalation of ethylene at the St. Francis Hospital, Pittsburg, led to an inquiry into the chemistry of the gas, from which some conclusions have been drawn which are of much practical import. It has become obvious that unless special care is taken in the production and in the storing in cylinders of ethylene there is risk of contamination with carbon monoxide. The symptoms of poisoning alluded to above were in fact attributable to carbon monoxide, and at least one fatality due to this poison has followed the inhalation of ethylene. The manufacturers of the ethylene used offered every facility for the inquiry, and the result of this work should be a uniformly high standard of ethylene production in America. So far as we are aware, there has as yet been no reason to suspect the purity of any of the ethylene made for anæsthetic purposes in Great Britain. The use of the gas here has of course been on a very much smaller scale than in the United States, and indeed it does not so far appear from the literature and from experience that there is any large number of cases in which ethylene can give results superior to those obtainable from nitrous oxide, oxygen, and ether, properly employed. Considering also the unpleasantness of its odour, and the elaborate precautions recommended for abolishing all risks of explosion, we find it hard to become enthusiastic for the frequent employment of ethylene.

GOOD AND BAD MATING.

NEARLY at the end of his life Francis Galton wrote: "When the desired fullness of information shall have been acquired, then and not till then will be the fit moment to proclaim a 'Jehad' or Holy War against customs and prejudices that impair the moral qualities of our race." Such is the sane pronouncement of the founder whose followers have sometimes been less discreet in their enthusiasm. He saw at any rate that nothing could be done in a hurry, and that the aim of human eugenics was something beyond fleshly perfection. Whether he would be satisfied with the progress which has been made in acquiring the necessary information we do not know; in many ways little seems to have been accomplished, but Galton probably realised that the unravelling of human inheritance would be no trivial business. He would surely have been pleased with the moving appeal which the Galton professor delivered to London school teachers in November last,[1] an audience which perhaps sees the good and evil results of human matings more nakedly displayed than do most people. He urged upon them that enough was now known to justify practical action in some cases and to convince everyone who would look at the facts that eugenics is a really serious matter which needs their close attention. More particularly he desired them to cultivate the frame of mind which looks upon the production of a bad child, or a child which may be bad, as a thing which is not done; the mating of a woman of a hæmophilic family is racial incest and should be abhorred as is family incest. Prof. Karl Pearson points his argument with the familiar family trees of defects—claw hand, hæmophilia, mental deficiency, cataract—and repeats his gloomy prophecy that if man evades the selective action of natural selection and does not replace it by reasoned conduct he is bound to deteriorate. We doubt

[1] The Right of the Unborn Child. Eugenics Lecture Series XIV. By Karl Pearson, F.R.S. Cambridge University Press. 3s.

whether the fullness of our information justifies this argument; in the moral and spiritual levels on to which human evolution is progressing, natural selection may be rather more difficult to understand than the crude form with which we are familiar. And we are glad to see that at the last annual meeting of the National Tuberculosis Association at Indianapolis, U.S.A., Prof. H. S. Jennings, of Johns Hopkins, read a paper on the thesis that health progress is quite compatible with race progress, and that campaigns against tuberculosis, infantile mortality, cancer, and so on are in no sense dysgenic or even anti-eugenic. His argument, broadly speaking, is that there is no evidence that the lives which are saved by intensive health work are, on a proper scale of human values, undesirable lives. But whether Prof. Pearson is right or wrong in this, he does one thing in his excellent discourse which eugenists (including Prof. Jennings) too often forget. He does not merely horrify his audience with pedigrees of undesirable people, but with family trees of the Bernoullis, the Bachs, the Walpoles, and such like; he shows that good mating produces good results just as bad mating produces bad results. We know, more or less, how mathematics or music or statesmanship can be encouraged just as well as we know how hæmophilia or mental deficiency can be diminished. And we are sure that eugenics will make a stronger appeal to people at large in this positive aspect; a general conviction that bad breeding is not done must have its counterpart in a belief that good breeding is worth while.

THE TRADE DISPUTES BILL.

APPREHENSION exists that the Trade Disputes and Trade Unions Bill may prove so widely drafted as to cover any controversy in which the medical profession is engaged—for example, if it is making a united stand in protest against the conditions of some general or particular service demanded of it. It is worth while to insist that the Bill should be so worded as to remove any doubt, though possibly the apprehension is unfounded. The point arises in two passages in the Bill. Clause 1 declares a strike illegal if it has any other object than the furtherance of a trade dispute within the particular trade or industry, or if it is designed or calculated to coerce the Government. "Trade or industry," it has been suggested, might cover action by the medical profession. The second passage is in Clause 8, which defines "strike" to include the cessation of work by a body of persons employed in any trade or industry, or a concerted refusal or a refusal under a common understanding of any number of persons so employed. The Bill, however, limits the meaning of "trade dispute within a trade or industry" to disputes between employers and workmen or between workmen and workmen—words which occur in Section 5 of the Trade Disputes Act of 1906. No court is likely to say that "workman" includes medical practitioner. The word "business," which the Bill does not use, has often been defined as including a profession—for instance, in the Partnership Act, the Business Names Registration Act, and various taxing enactments. But the word "trade," when defined in the Income Tax Act, certainly excludes professions. It will be remembered that the Finance Act of 1925 had to make special provision to concede to the profits of a profession the deduction for wear and tear which had always been allowed in the case of the profits of a trade. The Income Tax Act speaks of "trade or profession," "trade, profession, employment or vocation," in a manner which shows trade and profession to be distinct. Trade in the technical expression "offensive trade" has been held not to include the carrying on of a lunatic asylum. On the other hand, the legal rules about "restraint of trade" (covenants not to carry on business within a certain radius) have been applied to the covenants of doctors and dentists. "Industry" is defined in the Unemployment Insurance Act in terms which have no reference to a profession. On the whole, therefore, it does not appear that the medical profession is in danger, though its antagonists will doubtless wish the Bill to apply.

Another passage in the Bill deserves notice. Clause 6 proposes that any person employed by a local or other public authority who wilfully breaks his contract of service with that authority, knowing or having reasonable cause to believe that the probable consequence of his so doing (either alone or in combination with others) will be to hinder or prevent the discharge of the authority's functions, shall be liable to fine or imprisonment on summary conviction. There is here no limitation to trade or industry and no exclusion of professional services. The Bill is now before the House of Lords, where further clarification may be found possible.

THE annual election of members of the Council will take place at the Royal College of Surgeons of England on July 7th. Fellows who have not already voted are reminded that votes must be received by the Secretary not later than 10.30 A.M. on that day. There will be a reception at the College from 3.30 to 5 P.M. on the same day, and at 5 P.M. the Lister Memorial Lecture will be delivered by Prof. A. F. von Eiselsberg, the Lister Medallist for 1927.

Messrs. Hempson have drawn our attention to a mistake in the preface of the book entitled "The Conduct of Medical Practice," recently published by us. The firm of Hempsons, which is composed of Mr. W. E. Hempson, Mr. O. A. Hempson, and Mr. C. M. Oliver, holds the appointment of solicitors to the Medical Defence Union, but the appointment of solicitor to the British Medical Association is held by Mr. W. E. Hempson personally, and not by Mr. O. A. Hempson and Mr. C. M. Oliver, as was erroneously stated in the preface. We express our sincere regret for this unfortunate mistake.

INDEX TO "THE LANCET," VOL. I., 1927.

THE Index and Title-page to Vol. I., 1927, which was completed with the issue of June 25th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Tuesday, July 5th, at 2 P.M., Dr. Barty King will give a special demonstration at the Royal Chest Hospital; on the same date Dr. Dan McKenzie will demonstrate at the Central London Throat, Nose and Ear Hospital at 2.30 P.M. On Friday, July 8th, at 5 P.M., Mr. M. L. Hine will give a lecture-demonstration on iritis and cyclitis at the Royal Westminster Ophthalmic Hospital. All of these demonstrations are free to members of the medical profession. The Prince of Wales's General Hospital, N.-E. London Post-Graduate College, Tottenham, will undertake a vacation course from July 11th for two weeks. The course, which is an all-day one, 10.30 A.M. to 5.30 P.M., will include instruction in general medicine, surgery, and the specialties. The lectures at 4.30 P.M. are open to members of the Fellowship. Special visits will be made on the two Saturdays to the North-Eastern Fever Hospital and to the L.C.C. Mental Hospital, New Southgate. St. Mark's Hospital will give a special course for one week beginning July 11th, occupying six afternoons and three mornings, and including operations, lectures, X ray and pathological demonstrations. Two other courses taking place in July are part-time courses—one in neurology at the West End Hospital for Nervous Diseases from July 4th to 30th, and consisting of lecture-demonstrations at 5 P.M. daily; the other, a course in infectious fevers, at the Park Hospital, S.E., on Wednesdays, at 2.30 P.M., and on Saturdays, at 11 A.M., from July 13th to 30th. A general course of work is also provided at the associated hospitals, for which a comprehensive ticket is issued and a separate programme published. Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Fellowship of Medicine, 1, Wimpole-street, W. 1.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXX.

MALIGNANT DISEASE OF THE UTERUS.*

I. General Considerations.

WOMEN suffering from cancer of the uterus can be permanently cured if the growth is discovered sufficiently soon. Early diagnosis, therefore, is the first and most important step in the treatment of the disease, and of latter years considerable efforts have been made to secure this by disseminating amongst the laity knowledge of the symptoms that are its first outward sign. The result of these efforts is, I think, a definite tendency amongst women to go to the doctor earlier than they did, but one still sees many cases in which the growth has attained to an advanced stage before the sufferer seeks medical advice, and others in which the early signs of the growth have been overlooked or misinterpreted by the medical man, occasionally from lack of care, but more often because the early symptoms did not conform to text-book teaching.

Danger of Inverted Symptoms.

The constant symptoms of cancer of the uterus are bleeding, discharge, and pain, and this is the order of incidence in most cases. Intermenstrual bleeding at any age, but particularly in women over 35 years, demands prompt attention and investigation, and still more does bleeding coming on after the menopause. This is now generally understood. It is not so generally appreciated, however, that the order of incidence of the main symptoms may be altered, so that discharge may precede bleeding, or pain both bleeding and discharge. These atypical cases make up the bulk of those in which the seriousness of the condition remains unsuspected until it is too late to cure the patient.

The idea that carcinoma of the uterus is invariably accompanied by bleeding is by no means correct. Such absence of bleeding is most often met with when the cancer is corporeal, and especially when the uterus is senile, for then the cervical canal may be very narrow or even obliterated. The growth silently eats its way through the uterine wall, and the first patent intimation of its presence is sudden ascitic enlargement of the abdomen, secondary to metastatic growths in the peritoneum. If, however, the history of these unfortunate patients be investigated, it will be found that they have long been conscious of vague pain low down in the abdomen. Cancer of the cervix, though less commonly, may also run an entirely or almost bloodless course. Such growths may spread far into the paracervical and paravaginal tissue before anyone is aware of their presence. The process of infiltration is, however, accompanied by pain, the origin of which is mistakenly attributed to colitis, or if complained of down the leg to neuritis, the latter diagnosis having a certain amount of truth in it, as the pain is due to the obturator nerves becoming involved with the infiltrated glands. Even when bleeding is the primary sign of uterine cancer, it may only occur at long intervals, and then very scantily. This particularly applies to corporeal disease.

Difficult Physical Signs.

It is evident from the foregoing how important it is to examine vaginally a patient presenting vague lower abdominal or pelvic symptoms. But even after the vaginal examination is made the diagnosis may not be clear. This is particularly true of carcinoma of the corpus, in which vaginal examination may reveal nothing, not even bleeding. With carcinoma of the cervix, too, the physical signs may be equivocal. Thus endocervical growths, until they have broken through the vagina, present no ulcerating or fungating surface, whilst some ectocervical growths are very difficult to distinguish from an erosion, especially when the growth starts at some point on a pre-existent erosion, as it very frequently does. In all such difficulties the proper course is to examine the woman under an anæsthetic and remove a portion of the suspected tissue, dilating the cervix, if necessary, to do this. It cannot be too frequently emphasised that "the change" is not normally accompanied by continuous or irregularly repeated bleeding. True, such bleeding often occurs at "the change," but this is because uterine disease or degeneration is so common at that epoch. In spite of much propaganda, women as a whole cling to the dangerous delusion that irregular bleeding is normal at the menopause, for compared with the deep ingraining of old wives' tales modern hygienic education is a mere veneer.

Cure of Cancer of the Cervix.

Turning now to the curative treatment of cancer of the cervix, it is certain that the disease if discovered sufficiently early can be permanently cured by suitable operative measures. This leads us to a consideration of what is meant by "sufficiently early." The question is easily answered from the strictly histological aspect—namely, that the operative cure of carcinoma implies the excision of the primary growth, together with an area of tissue that comprises every lymphatic channel and gland infected by cells derived from the primary growth, and that if the extent of the growth permits such an excision, the patient is cured. From the clinical standpoint, however, an answer cannot be given with such definiteness, for we have no means of exactly ascertaining the extent to which detached carcinoma cells have permeated the surrounding tissues, though we can often be fairly certain which structures the primary growth has or has not infiltrated.

When is a Growth Removable?

The task set the clinician is to decide whether or not the growth is removable, or at least whether the chances of its being removable are worth embarking on an operation to remove it, and this decision must be based both on the results of his physical examination and on a consideration of the symptoms complained of by the patient, both being equally important.

It is necessary to remember the directions in which the growth may spread—namely, downwards, backwards, forwards, and sideways.

Extension rarely takes place by *upward spread*. Even in patients dead of the disease, the corpus is usually pretty intact. The result is that enlargement of the body of the uterus is usually conspicuously absent, and when it does occur, it is usually due to a pre-existent fibroid or to distension of the uterus with pent-up pus (pyometra). The first cause gives rise to no pain, but the second to both pain and fever. Enlargement of the uterus from either of these causes is, however, no bar to an operation.

Downward spread carries the growth into the vaginal walls, and this in itself does not prohibit an operation which removes most of the vagina, so long as the growth has not passed from the vaginal wall to the structures underneath it. In general, the further down the vaginal wall the growth has spread the greater the chance that the structures deep to it are involved. For instance, a growth half-way down the anterior wall has nearly always involved the bladder base, though on the posterior wall more extension is allowable before it is probable that the rectum is involved, for the upper inch of this wall is separated from the bowel by Douglas's pouch. Mistakes in estimating the extent of the downward spread of the growth are frequently made owing to the fact that its advancing edge often forms a projecting ridge like a ring round the vagina, and this is taken to be the lower border of an excavated cervix, whereas it is nothing of the sort. It is important in examining these cases to measure the distance of this edge from the vaginal outlet, for if the distance is less than that of the normal vaginal wall the growth has involved the vagina.

Extension down the lateral walls is accompanied by an increasing risk of involvement of the ureters. Actual cancerous infiltration of the ureters occurs late. At first they are merely pushed outwards; later on the growth may surround them either entirely or partially, so that they run in a deep groove. Sooner or later they become obstructed, not, as might be thought, by the actual growth

* An article on Malignant Disease of the Uterus, II., Operative Measures and Irradiation, will appear next week.

of cancer taking place in their substance, but from contraction of the cancerous growth outside them, so that they become constricted about an inch above their junction with the bladder. Following such constriction, the ureter dilates above the obstruction, and so does the pelvis of the kidney. That this dilatation is not due to growth in the ureteral wall is proved by the fact that if the ureter be dissected out of the growth the dilatation immediately subsides.

Gross extension directly outwards from the cervix, besides involving the ureters, sooner or later reaches the pelvic side wall, forming a buttress-like mass which more or less fixes the cervix; this massive infiltration of the paracervical tissues gives rise to pain of an aching character felt deep down in the abdomen and in the groin. But besides this method of extension, there is going on in this direction another, far more insidious—namely, lymphatic permeation—by which cancer cells may reach the same goal without the formation of any mass that can be felt, and without any pain. The principal route of lymphatic permeation in cancer of the cervix is, in fact, directly outwards into the glands in the obturator fossa, which may be extensively involved, causing pain, felt down the front and inner side of the thigh without any tangible paracervical thickening.

Extension of the growth forwards involves the bladder at the junction of its posterior wall and base. The first symptom of this is increased frequency of micturition, coupled with pain in the act. Later on changes appear in the urine, which contains pus or blood, or both.

Extension directly backwards presently reaches the peritoneum on the anterior wall of Douglas's pouch. When this happens, the rectum or a coil of the pelvic colon becomes adherent at the point where the growth is threatening to break into the peritoneal cavity, and this prevents general peritoneal dessemination. Instead a mass is formed, largely in the wall of the infiltrated gut, and intestinal symptoms appear. Thus there is pain in the back and rectum, made worse by defæcation, and later on diarrhœa with, perhaps, blood in the stool. A degree of flatulent distension of the abdomen will be noticed in its lower part.

The reason of this detailed description of the directions in which cervical cancer spreads, and the symptoms associated with the spread, is that the decision whether a growth is probably removable depends upon an understanding of these things.

Important Questions.

In examining any individual case, not only should the size and degree of fixity of the growth, and the length of the vagina under the growth, be ascertained, but two important questions should be asked.

The first is: "Have you any pain?" An answer in the affirmative indicates that in all probability the growth has passed beyond the confines of the cervix into the paracervical tissues or regional glands, for if still limited to the cervix it is not, as a rule, painful, the exception being massive endocervical carcinoma, in which the tissue tension is very excessive.

The second question is: "Have you any trouble with the bladder—difficulty, frequency, or pain?" If the woman replies "None," the probability is that the growth is removable, because by far the commonest absolute bar to the completion of the operation is deep involvement of the bladder. If, in addition, the urine is normal, it is quite certain that the bladder is either not involved or only very superficially so. If, on the contrary, the patient replies that she *has* trouble with the bladder, its duration should be inquired about. For instance, she may say that she has great frequency, but on questioning it may be disclosed that she has had frequency for years. The urinary symptoms due to a carcinoma of the cervix are of short duration. Frequency is less grave than pain, and pain than difficulty, for frequency does not necessarily indicate deep infiltration of the bladder, whereas difficulty almost invariably does. The urine should then be examined. Normal urine implies that the mucosa at least is uninvolved, whereas pus and blood indicate the contrary. When in spite of interrogation and ordinary examination doubt still exists as to the degree to which the bladder is infiltrated, the cystoscope should be employed.

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Special Articles.

ROYAL COLLEGE OF SURGEONS OF ENGLAND:
POSITION OF THE MEMBERS.

As our readers are aware [1] the direct representation of Members on the Council of the Royal College of Surgeons of England is being investigated afresh by the Council of the College. At the annual meeting of the College held on Nov. 18th, 1926, a resolution was passed to the following effect:—

"That this thirty-eighth meeting of Fellows and Members again affirms the desirability of admitting Members to direct representation on the Council of the College and respectfully requests the Council to take a postal vote of Fellows and Members on the general principle as set out in this resolution."

The Council of the College has acceded to this resolution so far as to request a postal vote from the Fellows on the "desirability of direct representation of Members on the Council." This request was circulated to the Fellows with an explanatory statement regarding the claim for representation. A considered reply to this statement has now been issued by the Society of Members, signed by Dr. Ernest E. Ware (President), Dr. Redmond Roche (Vice-President), Mr. J. Lawson Dick (a Fellow and a member of Council), and Mr. Hubert Pinto-Leite (Hon. Secretary). The statement is here reproduced in full, and in the concluding section dealing with the six specific claims made on behalf of members the remarks of the Council are followed in each case by the reply of the Society to them.

EXPLANATORY STATEMENT BY THE COUNCIL OF THE COLLEGE.

Historical Abstract.

The Royal College of Surgeons was incorporated by Charter in 1800. The old Company of Surgeons was declared to have been dissolved, and a new corporation was established. Under the Charter of 1800 the governing body or Court of Assistants, as it was then called, consisted of 21 persons. Eighteen were named and appointed in the Charter, and three were added at the first meeting of the Court. They were appointed for life with power to fill up vacancies as they might happen, and from them were chosen the ten Members of the Court of Examiners, the Master and two Governors or Wardens being selected from these ten. The Charter of 1822 changed the titles of Master and Governors to President and Vice-Presidents, and provided that the Court of Assistants should in future be styled the Council of the College. The Charter of 1843 took away from the Council (increased to 24 Members) the right of self-election, made provision for the abolition of life membership of the Council, and made membership of the Court of Examiners no longer the exclusive privilege of Members of the Council. A new body of Members to be called Fellows was constituted and the election of the Council was placed exclusively in the hands of the Fellows, for Fellows alone were made eligible to vote for and sit upon the Council. The Council were empowered, under certain conditions, to elect to the Fellowship all Members of the College who were such at the time that the Charter of 1843 was granted. Since that date it has been open to all Members to obtain the Fellowship by examination.

From the incorporation of the College in 1800 the Court of Assistants or Council had been composed mainly of surgeons holding hospital appointments, and the Charter of 1843 required that a Member of the Council should not practise midwifery or pharmacy and should be in bona fide practice as a surgeon.

[1] THE LANCET, June 4th, p. 1191.

That restriction remained in force till 1888, but, as provided by the Charter granted in that year, any Fellow of the College who has been a Fellow of the same for ten years or a Member of the same for 20 years, is now eligible as a Member of the Council without any restriction as to mode of practice.

Functions of the College.—The reason for the grant of the Charter of incorporation in 1800 is stated in the following recital:—

"And whereas it is of great consequence to the Commonweal of this Kingdom that the art and science of Surgery should be duly promoted and whereas it appears to Us that the establishment of a College of Surgeons will be expedient for the due promotion and encouragement of the study and practice of the said art and science, Now we etc."

These words, repeated and emphasised in the Charters of 1822 and 1843, have been held to indicate that the functions of the College are twofold—one scientific, concerned with the promotion of the science of surgery, and the other academic and professional, concerned with the promotion and encouragement of the practice of surgery, including the examination of students and others to qualify for practice or honours in surgery and kindred subjects. The College endeavours to promote the science of surgery by means of the museum, the research laboratories, and the workrooms attached to the museum, the library, Hunterian and other lectures, demonstrations, and the award of prizes. The study and practice of surgery are promoted by the regulations drawn up for the education and training of students and the examinations for the several diplomas granted by the College.

Financial Arrangements.—Under the terms of the Agreement made with the Royal College of Physicians of London in 1884 for a Conjoint Examining Board, the Diploma of Member can only be granted in association with the Licence of the Royal College of Physicians, and candidates for the Diploma of Member no longer pay fees directly to the College of Surgeons. A fee of 40 guineas (exclusive of fees, if any, for re-examination) is paid to the Conjoint Examining Board for the two Diplomas of M.R.C.S. Eng. and L.R.C.P. Lond., and after payment of the expenses incurred in conducting the examinations, the remaining balance is divided equally between the two Colleges and paid over to them by the Board. A Fellow, in addition to the fees paid by him through the Conjoint Examining Board, pays a fee of 20 guineas (about to be increased to 30 guineas) for his Diploma of Fellowship, or, if not previously a Member of the College, pays a fee of 30 guineas (about to be increased to 50 guineas). No further payment is made either by a Fellow or a Member.

Rights and Privileges: Members.—1. The right to the description M.R.C.S. and the right to be registered under the Medical Acts of the United Kingdom if the Diploma of Member is held together with the L.R.C.P. Lond. 2. The use of the museum and library. 3. Attendance at all lectures and demonstrations held within the College. 4. Eligibility for professorships and lectureships and for collegiate prizes. 5. Eligibility for the examinership in physiology for the Fellowship, the examinerships in anatomy, physiology, midwifery, and pathology, under the Conjoint Examining Board, and the examinerships for the Diplomas in Public Health, Tropical Medicine and Hygiene, Ophthalmic Medicine and Surgery, Psychological Medicine, and Laryngology and Otology. 6. The right to wear a distinctive gown. 7. Eligibility to attend and vote at the annual meeting of Fellows and Members, and to receive a copy of the annual report of the Council.

Fellows.—The Fellows have the same rights and privileges as the Members, and in addition: 1. The right to vote at the election of Members of the Council. 2. Eligibility for membership of the Council (*a*) if a Fellow of ten years' standing, or (*b*) if a Fellow who has held the membership for 20 years. 3. Eligibility for the Court of Examiners, the examinership in anatomy for the Fellowship, and the Surgical Section of the Board of Examiners in Dental Surgery.

Diplomas and Degrees.—In 1887 the Royal Colleges of Physicians and Surgeons petitioned the Crown for power to grant degrees in Medicine and Surgery to candidates passing the conjoint examinations. The petition failed, as have also two schemes considered from time to time for conjoint examinations with the University of London. Since 1887, however, the University of London has been reconstituted, and several new universities in the provinces and Wales have been founded. Medical students, accordingly, have better opportunities of obtaining degrees in Medicine and Surgery, and at the present time 83 per cent. of those obtaining the Diploma of M.R.C.S. are university students.

Claims of the Members.—Since the institution of the annual meeting of Fellows and Members in 1885, resolutions in favour of giving Members of the College some form of direct representation upon the Council have been brought forward and passed almost every year. On behalf of the Members it has been claimed:—

1. That, as Members of the Corporation, they are entitled to a share in the management and government of the College.
2. That the Council is composed entirely of consulting surgeons and does not represent the Members, most of whom are engaged in general practice.
3. That before 1843 Members of the College were eligible for Membership of the Council, and that the Charter of 1843 made them no longer eligible.
4. That the interests of the Fellows, of whom many are engaged in teaching or as consultants, do not always coincide with those of the general practitioners who constitute the great majority of Members of the College.
5. That a large proportion of the income of the College is derived from fees paid by candidates for the Diploma of Member.
6. That steps should be taken to remove the many disabilities from which, it is stated, Members of the College suffer, as compared with graduates of Provincial, Welsh, and Scottish Universities.

REMARKS ON THESE CLAIMS AND REPLIES OF THE SOCIETY OF MEMBERS.

Claim I.

"That, as Members of the Corporation, they are entitled to a share in the management and government of the College."

Remarks of the Council.—There are some 18,000 Members, many resident in distant parts of the world and many whose names have never been entered on the Medical Register of the United Kingdom, and it would not be practicable to arrange an election of Members of the Council, with membership of the College as the sole qualification for those who vote.

In universities it is generally required that graduates who wish to exercise rights within the university should, after graduation, take steps, including the payment of an additional fee, to have their names placed and retained on the register of their university. It is obvious that some such system would be required if the right of voting were conceded to Members of the College, and it is not known whether Members would be prepared to pay an additional fee and place themselves on an electoral roll of the kind indicated in sufficient numbers to justify the suggested change in the constitution of the College.

The rights of electing Members of the Council and of being eligible for a seat on the Council, hitherto confined to the Fellows, have been acquired by the Fellows after passing a further examination in surgery and paying additional fees. They are among the chief advantages which the College itself confers on the Fellowship, and could not be conceded to others without interference with the principle at present embodied in the Charters that the government and management of the College shall be in the hands of those who have done something more than take a pass degree or diploma and have given some evidence of their intention to devote themselves specially to the practice of surgery.

Comment by the Society of Members.—Apparently it is acknowledged in the preamble that the Members of the Corporation are entitled to share in the manage-

ment and government. In reply to the difficulties raised as to the method of carrying out the election registration, a composite fee, as is done by the London University, might easily be arranged. Moreover, a draft scheme has been submitted to the Council of the College by the Society of Members showing alternative methods. This, after all, is a trivial matter and one capable of easy adjustment. That the taking of the Fellowship is evidence of intention of future devotion to surgery is refuted by the Council's remarks on Claim II., since on the Council's own showing a large majority of Fellows is in general practice. At no time have Members claimed to have a vote for the election of the whole Council, but only for a limited representation by some of their number on that body.

Claim II.

"That the Council is composed entirely of consulting surgeons and does not represent the Members, most of whom are engaged in general practice."

Remarks of the Council.—The Council is elected by the Fellows, a majority of whom are in general practice, and there is nothing to disqualify a Fellow in general practice from becoming a Member of the Council.

The result of an inquiry made a few years ago showed that in the whole of Great Britain and Ireland there were not more than about 400 practitioners entirely engaged in consulting surgical work (general and special), some of these not being Fellows of the Royal College of Surgeons of England. At the present time there are some 1800 Fellows of the College, and it is certain that a large proportion of them is engaged in general practice.

Comment by the Society of Members.—It is true that a Fellow engaged in general practice might be elected to the Council, but with one possible exception, this has never happened. Members, however, seek representation by a few of their own number. To ask that some three Members should be elected to represent the views of 18,000 is not an extravagant claim.

Claim III.

"That before 1843 Members of the College were eligible for Membership of the Council, and that the Charter of 1843 made them no longer eligible."

Remarks of the Council.—Before 1843 a Member could be elected a Member of the Council, but the Council was always composed mainly of surgeons holding hospital appointments or some high official office, and its personnel did not differ essentially from that of councils elected since that date. It was never the right of the general body of Members to elect the governing body. When a vacancy in the Council occurred this was filled by the vote of the existing Members of the Council.

Comment by the Society of Members.—The remarks on this claim betray some evidence of sympathy with an absolute autocracy which was killed by the Charter of 1843. This Charter created Fellows as a higher order of Members but did not deprive Members of their existing privileges. At the present time Fellows derive their legal status to deal with finance from their rights as Members. In proof of this, is the fact, that if a person becomes a Fellow without having previously acquired the Membership, this latter is conferred upon him to legalise his position.

Claim IV.

"That the interests of the Fellows, of whom many are engaged in teaching or as consultants, do not always coincide with those of the general practitioners who constitute the great majority of Members of the College."

Remarks of the Council.—Many Fellows are engaged in general practice, and the interests of the Fellows, so far as it is legitimate for the College to promote them, do not differ from those of the Members.

The College was founded to promote the study and practice of surgery for the benefit of the public. There is nothing in the Charters empowering the College to promote the interests, other than the professional interests, of Fellows and Members. Being only one of several medical licensing authorities, the College could not deal effectively with social and ethical questions affecting not only Fellows and Members of the College, but all members of the medical profession. Such questions pertain rather to some central authority such as the General Medical Council, or some voluntary intraprofessional organisation such as the British Medical Association.

Comment by the Society of Members.—Since the College was founded to promote the study and practice of surgery for the benefit of the public, and the public is largely attended by general practitioners, of whom very many are Members of the College, it follows that the needs of the public are best appreciated by the Members of the College. Hence, it is only just to the public that the Members should have some representation on the Council, in order that they may voice the views of the guardians of the public health on educational subjects, and on matters of general professional interest on which, from time to time, the Council is consulted. Mutual coöperation is much needed and this is all that is desired by the Members.

Claim V.

"That a large proportion of the income of the College is derived from fees paid by candidates for the diploma of Member."

Remarks of the Council.—It is true that the share of the fees for the Diplomas of M.R.C.S. Eng. and L.R.C.P. Lond. paid to this College by the Conjoint Examining Board after defraying the expenses incurred in conducting the examinations forms an important part of the income upon which the College is dependent for its existence. The proportion, however, varies greatly from time to time, and so recently as 1921 it was less than the realised surplus from the fees for the Fellowship and the Licence in Dental Surgery.

Comments by the Society of Members.—It is difficult to understand why the Council in estimating the income for 1921 from Fellows and Members respectively, should have added the income derived from candidates for the licentiate in dental surgery to that derived from candidates for the Fellowship. It would seem more reasonable to add the income from the Licentiates to that derived from candidates for the Membership, since many of the Licentiates are already Members of the College.

As a matter of interest, the figures of income from candidates for the Fellowship, Membership, and Licentiateship respectively, for the last two years are as follows:—

1925 .. .. £4496, £26,459, and £5899.
1926 .. .. £4768, £23,239, and £4264.

Thus the claim of the Members that they are the main financial support of the College is fully justified.

Claim VI.

"That steps should be taken to remove the many disabilities from which, it is stated, Members of the College suffer, as compared with graduates of Provincial, Welsh, and Scottish Universities."

Remarks of the Council.—Members of the College acquire the same rights and privileges under the Medical Acts as graduates of universities. It is not possible for the Council to influence the estimation in which the Diploma of Member and a medical degree are respectively held by the public. No doubt there is a special prestige in a university degree, but the Diploma of Member has also a value of a special kind, which is recognised not only in this country, but in foreign countries and the Dominions beyond the seas.

Comment by the Society of Members.—The Members' claim is that the Conjoint Diploma has been proved by professional standards to compare most favourably with many university degrees. In the pass lists for the services, &c., university degrees are set out, but no mention is made of the Conjoint Diploma. Many hospitals require candidates to possess a university degree to the disadvantage of those holding the

aforesaid diploma. We think that effective action on the part of the Council would rectify this and we consider this an instance in which representation of Members on the Council would be of material help. With the concession to Members of limited representation on the Council, the privileges and influence of the Fellows would remain unimpaired while the Council would be brought into harmonious relations with the large body of Members on whose loyal support it is greatly to the interest of the College to be able to rely.

The reply of the Society of Members which has also been circulated to all the Fellows concludes with the expression of a hope that the result of the polling will end a long and vexing controversy which has disturbed the College for 38 years.

MEDICINE AND THE LAW.

Limitations on Unrestricted Publicity of Judicial Proceedings.

THE question how far the unlimited publicity in connexion with deaths under anæsthetics causes needless and harmful panic in the public mind is one of fact not of law. As a matter of law, an examination of the statute-book shows that, while publicity of judicial proceedings is a British tradition, Parliament has always been willing to surrender the tradition in the face of abuses prejudicial to public or private interests. Thus the safety of the realm made it a reasonable precaution to provide that prosecutions under the Official Secrets Acts might be heard in camera. Under the Children Act the court can be cleared when a child gives evidence. To prevent injury to public morals the publication of reports of judicial proceedings containing indecent matter was prohibited, and the reporting of divorce cases was restricted by a rather imperfectly drafted Act of 1925. Private as well as public interests were presumably protected when the Criminal Justice Act of the same year forbade both the photographing of a judge, juror, litigant, or witness in court or in the precincts of the court, and the publication of such a photograph in the press. Personal interests again were considered when Parliament allowed the doors of the courts to be closed to the public at the hearing of applications under the Adoption of Children Act and the Guardianship of Infants Act. Such examples indicate the statutory limits to publicity in judicial matters. Persons are not to be exposed to prejudice or blackmail merely to preserve the citizen's right to read about their domestic affairs in his daily newspaper. And, outside the sphere of judicial proceedings, there are other statutory limits. Voting by secret ballot is a limitation of publicity which everyone accepts. Post-office officials must not disclose the contents of telegrams, nor must income-tax officials fail to observe secrecy. Publicity has a relative, not an absolute, value.

In so far as the jurisdiction of the coroner is affected by the proposal to limit publicity in connexion with the deaths of patients to whom anæsthetics have been administered, it must be remembered that a coroner's court is not necessarily open to all the world. Exactly a hundred years ago Lord Tenterden delivered a judgment which laid down that a coroner's court was, like any other court of justice, open to the public so long as space was available and provided that there were no special reasons to the contrary. If there are special reasons to the contrary—the interests of justice or decency, for instance—the coroner has a discretion to exclude the public or any particular persons. The suggestion has been made from time to time that deaths occurring in hospitals should be investigated by tribunals selected from panels of medical practitioners of known reputation and approved qualifications and experience. It should not be impossible to devise some such tribunal which would be acceptable to the Home Office and which would be recognised as adequate by the public. And it should be possible to allow the representation of all parties at the inquiries held by such a tribunal without permitting unlimited publicity and exaggerated sensationalism in the reports of its proceedings.

Alleged Negligence of Dental Hospital.

An important ruling on the duty of a dentist, where a tooth goes down a patient's throat, was given by Mr. Justice McCardie in the case of Cooper *v.* Mirron and Sinclair, in which Mrs. Cooper claimed damages for the death of her daughter, aged 30, alleged to be caused by the negligence of the defendants in the extraction of her teeth at the National Dental Hospital, Great Portland-street. The learned judge, in summing up to the jury, observed that it was clear that Miss Cooper died as a result of septic trouble due to a piece of tooth having gone down her windpipe. One of the issues of the case, he said, was whether her life could have been saved if proper steps had been taken in time; the medical evidence on the whole seemed to show that it might, and it was open to the jury to take that view. Several times during the examination of the witnesses Mr. Justice McCardie questioned them as to what teaching is given to dental students in the matter of the steps to be taken if a tooth enters a patient's windpipe. Dr. Arthur Underwood, sub-dean of the National Dental Hospital, and lecturer and examiner in dentistry, gave detailed evidence on this point which other witnesses had left a little vague. The judge told the jury that, where a tooth went down the throat of a patient, whether the symptoms of distress were serious or not, the dentist's duty was clear. He must tell the patient what had happened, and must take steps, by X rays, to locate the foreign body and to have it removed if it were in a place of danger to the patient. Those were the things which should be done whether the dentist practised in the country or in town. In the case then being tried, said the judge, everyone in the operating-room knew that the tooth had gone down the patient's throat. It was now known that, if a tooth went down the throat, it might go down the airway and serious consequences might result. It was for the jury to say whether the defendants (or either of them) were guilty of negligence in not informing Miss Cooper or her friends of what had taken place, and in not taking steps to ascertain where the piece of broken tooth actually was. The special jury returned a verdict for the plaintiff against the defendant, Mr. Gabriel Mirron, with damages £150; they took the view that death had resulted from his negligence. They added that they considered from the evidence that the general committee of management of the National Dental Hospital was deserving of very severe censure, and that it was possible that the case against Mr. Mirron would not have been so severe if there had been a tighter hold on the management by the committee and officials. Asked by the judge what was the ground for censuring the hospital committee, the foreman referred to the absence of care as to who was present at the operation. By this he appeared to mean that a stricter record should have been kept of the persons actually present. This seems a trifling matter by comparison with the issue of negligence; but the evidence had disclosed questions of responsibility at the operation, and doubt as to the actual presence of the medical superintendent of the hospital, Dr. Alfred Sinclair, one of the defendants. The reasoning processes of the collective mind of a jury (even if it is a special jury) are matters of uncertainty and speculation. An external unanimity is often attained by compromise. The verdict of this jury, which took some time to reach a decision, possibly meant that several of its members thought that the plaintiff ought to have some remedy, and that the hospital as an organisation, rather than any particular defendant, was to blame. The hospital, however, was not sued; it will be matter for argument whether the verdict against Mr. Mirron can be upheld. Judgment has been reserved, pending an application by counsel on either side.

THE HEALTH OF LONDON IN 1926.

Dr. F. N. Kay Menzies presents his first complete annual report[1] as medical officer of health for the County of London, which forms Chapter I. of Vol. III. of the annual report of the County Council. The Registrar-General estimates the 1926 midyear population at 4,605,400 civilians and 10,000 non-civilians. This estimate allows for an increase of 91,400 since the census, and as the excess of births over deaths during these five years was 165,500, emigrants must have exceeded immigrants by about 74,000 persons.

Housing.

A table shows that the City and the 28 metropolitan boroughs, which make up the county, erected 4252 houses for the working classes, made 57 closing orders, and demolished 110 houses, while 316 houses were demolished voluntarily—a net addition of 3769 houses. The chapter on housing shows that, in addition, 4643 houses and flats were erected by the County Council with accommodation for 34,650 persons. One infers that as the annual increase in population is under 20,000, some progress was made in 1926 to make up for war arrears, although the table in Dr. Menzies's report shows that only 589 of 1640 cases of overcrowding were remedied by the boroughs, and a footnote states that in many cases it was impossible to take effective action for overcrowding owing to the shortage of houses.

Birth- and Death-rates.

The births in the county numbered 78,825, making a birth-rate of 17·1. The death-rate from all causes was 11·6; from tubercle, 1·03; from cancer, 1·46; and from pneumonia, bronchitis, and influenza combined, 1·9. The infant mortality-rate was 64, and the rate from diarrhœa and enteritis under 2 years per 1000 births was 12·0. The table giving the vital statistics in the metropolitan boroughs shows, of course, considerable variations. The following are some of them, leaving out of count the peculiar small population of the City to be dealt with elsewhere. The three boroughs with the highest birth-rates were: Shoreditch (23·3), Poplar (21·6), and Bethnal Green (20·9); and those with the lowest were Westminster (11·3), Hampstead (12·3), and Holborn (12·4).

The lowest death-rates from all causes were recorded in Lewisham (10·1), Woolwich (10·2), Wandsworth (10·6), and Hampstead (10·6); whilst the highest occurred in St. Marylebone (13·0), Southwark (13·0), and Finsbury (12·9).

The lowest infant mortality-rates were in Lewisham (43), Woolwich (43), and Stoke Newington (49); and the highest in Holborn (90), Paddington (86), and St. Marylebone (85). The lowest rates for diarrhœa, &c., under 2 years were in Lewisham (4·9), Woolwich (5·3), and Hampstead (5·6); whilst the highest were Paddington (25·2), Holborn (22·4), and Stepney (18·6). The lowest rates for phthisis were recorded in Hampstead (0·58), Holborn (0·60), and Paddington (0·70); and the highest in Shoreditch (1·28), Finsbury (1·15), and Bermondsey (1·15).

Tubercle.

Dr. Menzies discusses the variations of the phthisis mortality. He points out that when the mortality from phthisis is stated as a percentage of deaths from all causes at each age-period much of the difference between the various boroughs disappears, and that the simplest and most obvious measure of the health of the population, especially the adult population, is afforded by the death-rate from all causes. He quotes with approval Osler's dictum that nutrition is the chief factor. In the case of children or persons under 20 years of age the highly urbanised environment of London does not appear to involve a high mortality from phthisis, but it is suggested that the explanation of the high London mortality is to be sought in the effect of population movements. Young adults of both sexes emigrate from London north of the Thames. Young immigrants, on the other hand, being unaccustomed to the London environment possibly fare worse than the native-born population. It is also suggested that emigrants do not take with them relatives, who are accommodated in London institutions. An illustration of this may be found in the fact that the lunatic asylum population of London is proportionately twice as great as that of the country as a whole. Dr. Menzies draws attention to the increase of phthisis among young women during recent years. This increase has been greater in London than in the aggregates of the urban and of the rural districts of England and Wales, and began to operate before the war (and possibly as far back as the 'nineties), and it is suggested that it may be associated with the taking up by women of business pursuits. After the age of 25, when more of the women are married, there is little evidence of this increased incidence of mortality through phthisis.

The Council have promoted a scheme for the trial of artificial light treatment for tuberculosis, and ten of the borough councils decided during the year to avail themselves of the facilities provided at certain hospitals and centres. The employment of tuberculous persons has received attention. Twenty-five ex-Service men, who had been trained at the Godalming Sanatorium, are being employed in the manufacture of leather goods at the Spero workshop, Hatton-garden, and 20 ex-Service pensioners are being employed at the Spero firewood factory, King's Cross. Selected patients have been employed in the Council's parks as gardeners, and it is found that the value of their work is about three-quarters of that of an ordinary park labourer. The number employed is to be increased from 4 to 12, but selection will be limited in future to employees of the Council. The boarding-out in clean healthy homes in the country of children from homes heavily infected with tuberculosis was begun in April, 1925, and up to the end of 1926 324 such children were successfully boarded out. Facilities for the residential treatment of tuberculosis have been increased. The M.A.B. have opened a hospital at Grove Park, Lee, with accommodation for 151 men and 171 women, chiefly for advanced cases, but 11 male beds and 12 female beds are reserved for surgical cases. The institutions used by the Council for advanced cases are not entirely reserved for this type. The improved facilities for the prompt treatment of children are shown by the fact that there is now no waiting-list either for pulmonary or surgical cases.

Small-pox.

Two small outbreaks of small-pox, comprising five and two cases respectively, affected London, and in both the infection was derived from Paris. Only five of the cases with one death from the confluent type actually occurred in London; the other two cases with one death from the hæmorrhagic type occurred in Willesden. It is remarkable that up to now London has not been invaded by the mild type of the disease prevalent in the midlands, northern counties, and South Wales. The expert medical staff is available for the home counties in aiding the diagnosis of suspected cases.

Diphtheria, Diarrhœa, Anthrax.

As to diphtheria, the case mortality of this disease has decreased greatly since the introduction of antitoxin in 1894. Thus the percentage figures for the eight 4-year periods beginning with 1895–98 has been 17·8, 12·2, 9·2, 8·7, 7·0, 7·4, 7·4, ending with 4·7 for the period 1923–26.

In June, 1923, Dr. Foord Caiger, of the M.A.B., addressed a letter to the medical press deploring the fact that such a high percentage of cases of diphtheria were admitted to hospital in a moribund state in view of the almost invariably successful results obtained by the early administration of antitoxin. Many metropolitan boroughs keep a supply of antitoxin at the town hall, and Dr. Menzies suggests that other

[1] From P. S. King and Sons, Limited, Westminster. 2*s*. 6*d*.

public places might be used as accessory sources of supply of antitoxin in order to make it readily accessible for all parts of each borough. A comparison of the various districts shows that the diphtheria death-rate is much higher below 2 years of age in the poorer boroughs, whereas in the more well-to-do boroughs a slightly higher mortality is found between the ages of 5 to 15. An unusual outbreak of diarrhœal disease occurred in Poplar in the second week in July. Samples of water in the affected area gave very unfavourable results when examined bacteriologically. It is thought that the outbreak may have been caused by polluted water from the gasworks being forced into one of the mains. There were seven cases of anthrax notified, five attributed to foreign hides and one to feathers from China. The one fatal case was a baby aged 1 year living in Paddington. The diagnosis was confirmed bacterially, but the origin of the disease could not be traced.

Encephalitis Lethargica.

There were 173 confirmed notifications of encephalitis lethargica with 68 deaths. During the years 1919 to 1925 there were 1325 true cases notified with a 37 per cent. mortality. A study of these cases shows: (1) that the incidence is highest at the 10 to 20 age-period, and especially at the period from 15 to 20; (2) that there is a slightly higher incidence among boys from 0 to 15 years, although the fatality was slightly higher among girls at these ages; and (3) that the case fatality is greatest under 5 years and over 35 years. The London cases were over four times as many as the Sheffield cases which formed the material of the Medical Research Council's Report (No. 108). The London experience confirmed that of Sheffield in that no relation could be traced between the disease and a poor or insanitary environment and water- milk- or food-supply. In London the susceptibility of young males was less marked and most noticeable at the age of puberty, and not at the time of sexual maturity as in Sheffield. In both experiences it is agreed that statistical estimates of the incidence and fatality of the disease are vitiated by the occurrence of unrecognised, mild, and abortive cases. Dr. Menzies estimates that in London the unnotified cases exceed the notified by 50 per cent. The accommodation of 100 beds at Winchmore Hill is quite inadequate to deal with the after-effects of the disease, and is only a clearing house for juvenile cases. More accommodation is needed for the careful and patient investigation which up to now has thrown no light on causation or effective preventive control.

Some other Causes of Morbidity.

According to the periodicity rule given in the last report an epidemic of influenza should occur in April, 1928, with its maximum about the thirteenth week of the year. When allowance is made for the change in the age constitution of the population between 1911 and 1921 it is found that the female deaths from cancer have actually decreased in number, while the male deaths have shown only a slight increase during that period. There were 90 deaths among the 337 notified cases of puerperal fever. In addition, the Registrar-General recorded 30 deaths from puerperal sepsis which were not notified. This gives a death-rate per 1000 births of 1·5. Midwives summoned medical aid in 17·5 per cent. of the 40,000 confinements attended by them, about the same percentage as last year. Of the 413 cases of ophthalmia neonatorum occurring in the practice of midwives there was impairment of vision in one eye in two cases, whilst in three the result could not be ascertained owing to removal. Fifty-seven cases were admitted to St. Margaret's Hospital. Several outbreaks of pemphigus neonatorum in the practice of midwives caused anxiety. The cases numbered 140, and the disease took a mild form.

Bacteriological Work.

The laboratory examined 11,121 specimens. The work included a full inquiry as to the milk-supply of Claybury Mental Hospital, and a comparison of the water of two swimming baths supplied with a special plant of the Turnover Filter Co., and of two swimming baths with untreated water, the result being entirely in favour of the specially treated water. A large amount of useful work was also done in the differential diagnosis of various nervous complaints.

The condition of the River Lee continued to be unsatisfactory. After heavy rains in July the Navigation Cut from Tottenham Lock downwards was especially bad, masses of putrifying débris being churned up by passing barges. This stream is still used by the rowing clubs of East London. The state of the Wandle is improved as the result of a better effluent from the Wandle Drainage Board. Many examinations of the water of open-air swimming baths were made. In one of the South London parks a paddling pond was cleaned and refilled with water from the mains. Within a fortnight the water was bright red, and microscopical examination showed an abundant growth of a red protococcus. For an early record of a similar occurrence Dr. Menzies refers us to Exodus VII. In the present instance a small dose of sulphate of copper successfully killed the organism which did not reappear.

NATIONAL PHYSICAL LABORATORY.

A RECEPTION AT TEDDINGTON.

THE annual inspection of the National Physical Laboratory at Teddington, on June 24th, was attended by more than 1000 visitors, who were received by Sir Ernest Rutherford, President of the Royal Society and Chairman of the Board, Sir Richard Glazebrook, Chairman of the Executive Committee, and Sir Joseph Petavel. To the medical visitor the majority of the exhibits were of spectacular rather than personal interest, but there were a number of demonstrations on the borderland of medicine and physics.

Protection against X and Gamma Rays.

The vital problem of protection against the X rays and the still more penetrating gamma rays of radium was made the subject of a comprehensive exhibit, showing the method of testing a variety of protective substances. The relative efficiency of building or other materials is expressed in terms of the "lead equivalent," the ratio being determined by direct comparison between pure lead and the material under consideration. The absorption of the rays due to a known thickness of the material—concrete, for example—is measured by means of an ionisation electroscope, and the thickness of pure lead which will absorb the rays to the same extent is found by experiment. The thickness of lead equivalent in absorbing power to unit thickness of the material is the "lead equivalent." The advantage of knowing the protective efficiency of building materials used in the construction of X ray departments is obvious, and it seems unfortunate that adequate protection is not compulsory in the construction of all such buildings.

Light and Colour.

The optical department contained some interesting apparatus for the measurement of colour. The equipment is designed to determine the properties of the "normal" human eye as judged from measurements of spectral colours by a large number of observers. When this determination is completed it will form a connecting link between the various practical methods of colorimetry and the physical properties of colouring materials. The study of colour blindness has always been hampered by the difficulty of establishing a standard of normal vision, and any advance in the direction of expressing colour vision in terms of wave-length rather than in terms of coloured beads or wool is to be welcomed. Spectrophotometry is of increasing importance in medicine as the only reliable method of testing glasses and filters for use in actinotherapy. A wide range of

glasses of known transparency or opacity to different regions of the ultra-violet spectrum is now available, and no doubt such glasses will find a place in modern "sunlight" clinics. Much of the apparatus now in use has been designed and constructed at Teddington, and embodies the most accurate methods of spectrum analysis.

Glare.

The efficiency of vision in the face of glare is being studied from the point of view of street lighting. The eye is very inefficient at detecting inconspicuous objects when a beam of strong light is falling on the retina, and it frequently occurs that motorists are at the greatest visual disadvantage when passing the headlights of an oncoming car. It is expected that, as a result of experimental study, it will be possible to design motor headlights of an efficient but less dazzling type than those commonly used at present.

The usual interest was shown in the testing of clinical thermometers, of which some 600,000 pass through the laboratory during the year. The test is exacting, and, although not compulsory, it is evident that most clinicians prefer to have the official stamp on their thermometers.

The exhibits in general showed a wide application to the needs of science and industry.

BRITISH HOSPITALS ASSOCIATION.

SEVENTEENTH ANNUAL CONFERENCE AT NORWICH.

THE annual conference of the British Hospitals Association was held in the Blackfriars Hall, Norwich, on June 23rd and 24th. Sir ARTHUR STANLEY, the President, was in the chair.

After the Lord Mayor (Mr. C. R. BIGNOLD) had welcomed the delegates the President delivered his address. He said that during the past few years a change had been taking place in the hospital world. Sooner or later the voluntary hospitals would be obliged to reconsider their position in regard to the general social welfare of the population. From their original function, as mere dispensers of charity, they had gradually become centres of training and research. But in their progress they had been content to maintain a state of isolation with no organised coöperation between them and the State and public authorities. Now the State's conception of its duty in regard to public health service had changed and had assumed a policy of initiative and aggression. In consequence the voluntary hospital must also change its position.

Relationship between Voluntary Hospital and the State.

What were the desirable relationships which should exist between the voluntary hospitals and public authorities? To answer this question the President quoted from a letter written by the Secretary to the Minister of Health, dated Feb. 15th, 1927, giving a list of suggestions to be examined by them in conjunction with local authorities, including boards of guardians. Amongst these was the possibility of taking stock of local health needs and coming to some agreement as to the lines of demarcation between the voluntary and the public hospitals in the area; of making a category of cases to decide the advisability of drafting the patients either to a voluntary or to a public hospital; of making some arrangement on "clearing house" lines; and of ascertaining to what extent the medical staffs of the voluntary hospitals would undertake responsibility for cases, or for a certain number of beds in public hospitals.

As to State aid, the voluntary hospitals had long opposed this form of help on the ground that it would be the forerunner of State control. But there were signs that gradually the State was drawing the voluntary hospitals into a public medical service. The hospitals received payment for work in connexion with venereal disease, maternity and child welfare, antenatal clinics, tuberculosis, &c. Whether these payments come from the State or from the municipal authorities, the principle was the same. In this way, little by little, the voluntary hospitals were becoming part of a State scheme without the more spectacular Treasury grant. It was most important that the voluntary hospitals should take a very broad view of the situation. They should develop more and more as the real centres of medical life in the area in which they were situated, all clinics and treatments under the public health service being associated with them. If the voluntary hospital were regarded as the consultative centre the Poor-law infirmaries would act as municipal hospitals, not only receiving incurable and chronic cases, but also taking in all simple medical and surgical cases which the domestic circumstances of the patient might render unsuitable for treatment at home. With such a coördinated scheme the patient would come to realise that his condition was the deciding factor as to where he should be nursed, and the voluntary hospital, relieved of all its trivial cases, would be able to devote its energies, accommodation, and funds to special work, for which it was admirably fitted. In conclusion, said the President, the voluntary hospitals are fast arriving at the parting of the ways, and they cannot hope to take their proper place in the prevention of disease unless they accept the undoubted advantages of a coördinated scheme of public medical service.

Discussion.

Colonel D. J. MACKINTOSH (Glasgow) said that they were quite alive to the fact that when the Poor-law hospitals were taken over by the public health authorities it was bound to affect the voluntary hospitals. But this need not necessarily be in an adverse way.

Colonel VERNON (Bournemouth) considered that the great stumbling-block which the Minister of Health would be likely to encounter in amalgamating the medical work of the country was the medical profession. He did not think that a medical man should be asked to undertake work for the State in a voluntary capacity. Young men who gave service to the hospital and were desirous later of specialising should, he thought, be given some assistance by the voluntary hospital. This ought not to be difficult, as voluntary hospitals were becoming more and more paying institutions, with paying patients and contributory schemes.

Mr. A. N. CROUCH (Somersetshire) had come to the conclusion that the hospitals could not do more than they were doing at present. There was considerable enthusiasm in the work and the result of interference would be to check the work and reduce voluntary effort.

Mr. HUTTON (Gloucester Royal Infirmary) said he feared that if any of the functions of a voluntary hospital were handed over to a public authority the cost of administration would at once go up. Speaking for his own hospital, the members of the working men's contributory scheme would, he was sure, be most antagonistic to any junction of their functions with those of a public body.

Mr. EDWIN PEARCE (Stockport) agreed that the time had come when an honorarium should be given to the so-called honorary medical staff of a voluntary hospital.

Mr. H. T. LOVE (Government Inspector of Charities in Victoria, Australia) said that they had in Australia the voluntary hospital system with State aid. But this did not connote interference, and the system worked well. He warned all present never to have their hospitals nationalised as in New Zealand, for the costs had run up to an astonishing degree.

Mr. BRIGHT (Royal Victoria Hospital, Bournemouth) expressed the hope that meetings would be organised in big centres to discuss these questions before the hospitals were forced into the unfortunate position of accepting anything the State might give them.

Motor Accident Cases in Hospitals.

The afternoon session was given up to a discussion on Motor Accident Cases in Hospital from the Insurance Point of View. The first speaker was Mr. N. J. JENKINS, a vice-president of the Council of the Insurance Institute of London. He said that the company he represented insured many thousands of motor-cars, and the policy usually issued included medical expenses within certain limits. Therefore if the hospitals were out of pocket very considerably by reason of motor accidents in the streets it would seem that the Hospitals Association should introduce some machinery to deal effectively with the position. But as long as the underlying principle of the administration of the hospitals was a voluntary one it was difficult to see how a payment for maintenance or services rendered could be enforced. Moreover, the insurance contract, as it at present stood, was between the insurance company and its policy-holder, and the hospital authorities could have no lien on the sums payable under the policies. If hospitals were legally entitled to intercept payment made by insurance companies it was easy to foresee that the hospital charges would increase enormously. The doctors, surgeons, anæsthetists, and so forth, who now freely gave their services, would rightly claim payment. It might be true that some persons injured by motor-cars had not the means to pay towards their hospital treatment, but statistics proved that in this respect the motorist was most impartial; rich and poor were treated alike. The moral sense of the casualty patients must be quickened, and when they plead inability there seemed no reason why the hospitals should not offer to accept payment by instalments. Instead of the Hospitals Association endeavouring to obtain statutory powers to intercept payments made by insurance companies—in Mr. Jenkins's opinion an entirely futile hope—he suggested that application should be made to the Government for a grant from the Road Fund. By his recent action the Chancellor of the Exchequer had admitted that this fund was not sacrosanct.

Mr. G. Q. ROBERTS (St. Thomas's Hospital) considered that an extra 10*s.* on to the insurance policy for institutional treatment would help the hospitals materially; he thought they ought to ask Mr. Jenkins to bring that matter before the insurance companies.

Mr. BLANCHARD (Sheffield) said that it seemed when an insured person was taken to a nursing home and liability proved the insurance company paid the claim. They only repudiated it when the claimant was the voluntary hospital.

Captain GREGG (Lowestoft) said that many hospitals were providing private wards for motor accident cases and were entering into special contracts with their patients. This should put the hospitals on a different footing.

The PRESIDENT, in conclusion, thought the statement made during the discussion, that a hospital could not claim for treatment given to persons injured whilst motoring because it was a voluntary institution, was completely wrong. Such a hospital then became not a voluntary but a compulsory hospital, and he thought the hospital was entitled to make a claim.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JUNE 18TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 219 (last week 243); scarlet fever, 1446; diphtheria, 761; enteric fever, 87; pneumonia, 977; puerperal fever, 30; puerperal pyrexia, 105; cerebro-spinal fever, 7; acute poliomyelitis, 9; acute polio-encephalitis, 1; encephalitis lethargica, 28; typhus fever, 1; continued fever, 1; dysentery, 5; ophthalmia neonatorum, 159. There were no cases of cholera or plague notified during the week. The single case of typhus fever was notified in Bristol C.B.

The cases of small-pox were notified from the counties of London 1 (Hackney), Derby 6 (Derby C.B.), Durham 105, Lancaster 2 (Wigan), Northumberland 9, Nottingham 1 (Mansfield), Southampton 1 (Bournemouth C.B.), Yorks, North Riding 1, West Riding 46, Glamorgan 1 (Mountain Ash), and Monmouth 46. None was returned from Kent, Middlesex, Surrey, or the City of York.

Deaths.—In the aggregate of great towns, including London, there were no deaths from small-pox, 5 (0) from enteric fever, 39 (1) from measles, 5 (1) from scarlet fever, 15 (7) from whooping-cough, 13 (4) from diphtheria, 48 (11) from diarrhœa and enteritis under two years, and 31 (5) from influenza. The figures in parentheses are those for London itself.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs. T. Gwynne-Jones and E. S. Mellor to be Surg. Comdrs.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Capt. A. R. Brailey has been appointed an Honorary Surgeon to the King.

Proby. Surg. Lt. E. A. Gerrard to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. C. R. Sylvester-Bradley is placed on the half pay list on account of ill-health.

Capts. to be Majs. (Prov.): J. E. Brooks and H. G. Hobson.

ARMY RESERVE OF OFFICERS.

Lt. A. D. Gorman to be Capt.

TERRITORIAL ARMY.

Maj. (Bt. Lt.-Col.) C. R. Browne, having attained the age limit is retd. and retains his rank with permission to wear the prescribed uniform.

Lt. W. H. Roberts, late R.F.A. T.A. Res. of Off., to be Lt.

C. R. C. Moon, late 2nd Lt., R.F.A., to be Lt.

Supernumerary for Service with O.T.C.—Capt. D. McNeill, late R.A.M.C., to be Capt., supern. for service with the Med. Unit, Glasgow Univ. Contgt., Sen. Div., O.T.C.

INDIAN MEDICAL SERVICE.

Col. C. R. Bakhle to be Hon. Physician to the King, vice Col. J. H. McDonald, retd.

Col. G. Tate to be Maj.-Gen.

Lt.-Cols. G. Hutcheson and R. F. Baird to be Cols.

Capt. Manohar Lall Dhawan to be Maj.

Col. A. Pollock, Chief Medical Officer, East Indian Railway, has been appointed Hon. Surgeon to the Viceroy. Lt.-Col. H. W. Acton, Professor of Tropical Pathology and Bacteriology, School of Tropical Medicine and Hygiene, Calcutta, has been appointed Director of the School, vice Lt.-Col. J. W. D. Megaw on leave. Maj. N. C. Kapur has been appointed Civil Surg., Murshidabad. Dr. Muhammad Umar, M.O. in Immediate Charge, Sadr Hospital, Bijnor, to officiate as Civil Surg., Bijnor, vice Dr. F. W. Holmes on leave. Dr. M. V. Webb, Principal, Women's Medical School, Agra, has been appointed to act as Chief Medical Officer, Women's Medical Service, and Secretary of the Countess of Dufferin's Fund Council. Dr. Muriel Stowe, Second M.O., Women's Medical College, has been appointed as Vice-Principal of the Women's Medical School, Agra, vice Dr. M. V. Webb on deputation.

Maj. C. H. Fielding has been posted to duty in the office of the Inspector-General of Prisons, Burma, Rangoon. Dr. Kali Prasad Sinha, M.O. on reserve duty from Hardwar to Saharanpur. Dr. S. D. Mathur, M.O. in Immediate Charge of the Sadr Dispensary, Partabgarh, has been posted to Allahabad.

BRISTOL'S MENTAL DEFECTIVES.—The Bristol City Council has decided to provide a colony for mental defectives at Almondsbury, some eight miles from the city, at a cost of £250,000. A site of 126 acres has been acquired and the details have been settled with the Board of Control. Experience shows that at least 50 fresh cases come under treatment every year, and it is found that the existing system of housing patients in various institutions—some of them a long distance away—is expensive and unsatisfactory. It is stated, moreover, that there are cases at the mental hospital which clearly ought not to be there.

Correspondence.

"Audi alteram partem."

UNIVERSITY OF LONDON:
AN APPEAL FOR A SPORTS GROUND AND BOAT-HOUSE.

To the Editor of THE LANCET.

SIR,—May we appeal to the general public for support in a cause which, we believe, will directly interest a great number of your readers. That cause is the provision of a sports ground and boat-house for the University of London.

The student life of this great University—the largest in the Empire—has long struggled gallantly towards that ideal of unity which is its natural birthright. But the force of circumstance has so far been too strong to permit of complete success. Scattered as are her colleges and schools throughout the metropolis, and scattered as are her external students throughout the world, considerations of time, of distance, and of expense have proved a heavy handicap, and, moreover, until now London has lacked that which is possessed by nearly every other university in the land—the places of common assembly where all, by tradition and custom, habitually forgather.

But the tide is on the turn. Already, by the acquisition of the Bloomsbury site, a great centre has been provided for the development of the teaching, administrative, and social life of the University. If to that can be added centres for inter-collegiate and inter-university contests, whereby athletics both on land and water may advance, pari passu, with academic growth, the University of London will at length have come into her own, and through the loyalty and devotion of her students and graduates will take her proper place as one of the great educational rallying points of national and imperial unity. To achieve this purpose money is required—not a great deal in view of the importance of the object, but more than the University can find from her own resources. The present position may be summarised as follows:—

For the sports ground, 28 acres of grass land at Motspur Park, near New Malden, have actually been acquired, and for the boat-house, two acres at Chiswick. Taking into account the purchase price, together with the cost of initial outlay and the provision of an endowment fund to meet part of the annual running expenses, the total sum required is £74,000. Towards this £14,300 has already been privately subscribed, £12,500 of that amount having been provided within the University. For the remainder we now appeal, and in making our appeal we should like to add that the list of private subscriptions is headed by H.R.H. the Prince of Wales, who has graciously expressed his keen interest in the proposals and his hope that funds will eventually be forthcoming.

Cheques should be made payable to the University of London Athletic Appeal Fund Account, and forwarded to the Financial Officer, University of London, South Kensington, S.W. 7, who will gladly furnish any further information on the subject.

We are, Sir, yours faithfully,

ROSEBERY,
Chancellor of the University of London.
W. H. BEVERIDGE,
Vice-Chancellor of the University of London.
G. ROWLAND BLADES, Lord Mayor.
H. J. WARING,
June 22nd. Chairman of the Athletic Appeal Committee.

THE PERSISTENCE OF THE SLUM.

To the Editor of THE LANCET.

SIR,—I have read with interest the leading article in your issue of June 25th, and I am not sure that I agree altogether with your picture of the slum. I have come to dislike the use of the word, because in the minds of most people the wretchedness of the house has come to be associated with inevitable degradation in the occupants. This, I think, is far from being the case. A very fair proportion of the occupants of uninhabitable houses are, and have been in my experience, making the best of the circumstances in which they find themselves, and are not so far assimilated to their surroundings that they fail to reach a high standard when removed to new houses under rehousing schemes. I should say that about 60 per cent. belong to this category. There is a further 30 per cent. who oscillate, but who, on the whole, maintain a fair standard in their new surroundings. The residue belong to a class which is almost incorrigible.

People removed from uninhabitable houses are suddenly put in possession of facilities to which they have been quite unaccustomed, and it does not do to quarrel too violently with them if they are not immediately adaptable. This is not only a housing problem, but a considerable social experiment in which time must be allowed to enter as an ally. After all, personal and domestic cleanliness is a recently acquired notion, and I agree that enlightened management is the correct procedure. I also think that the "enlightenment" should be a function of a health department. This is recognised here and acted upon. The general supervision of the conduct of those rehoused from insanitary properties is carried out by the female sanitary inspectors' staff, while recently a special officer has been appointed, armed with the powers of a sanitary inspector, to undertake special supervision of those who most require it.

In Glasgow we have been dealing in the main with closely congested areas in which the chief defects arise from the closeness of the tenement buildings, which deprive one another of light and air. The vital statistics of these areas uniformly show that life under these conditions produces a high proportion of deaths from respiratory disease, particularly in children under 5 years of age, and also a high infant mortality. One quite definite result which these conditions produce is to throw the incidence of measles back into the very early years of life, when this affection is most fatal.

In the opening paragraph of your leader you say that a note of complacency has crept into official statements regarding the housing programme. I have seen statements as to overcrowding by medical officers of health which are anything but complacent in tone. As for Glasgow, the overcrowding in the small houses, of which the city is so largely composed (60 per cent. of the population live in houses of one and two apartments), has become an extremely serious problem. This has been contributed to by (*a*) the growth of large families in small houses, and (*b*) an increasing practice for two families to crowd into one house, mostly a two-apartment one, thus converting it into two single apartment houses. This practice of sub-letting one of the apartments in a room and kitchen house has become extremely common in many streets of the city. These features are, of course, associated with unemployment, but are in the main an index of the shortage of houses which can be let at a suitably low rental.

The two main problems, as I see them, are these: (*a*) improvement schemes—i.e., demolition of insanitary houses and the rehousing of the displaced occupants; and (*b*) provision of houses to relieve overcrowding among the stratum of the population just above the level of the former group. As regards (*a*), rehousing schemes do not add to the total available houses, and as regards (*b*), this very large group has so far received little relief from building programmes. The process of decantation, as it is called, has affected this group only to a small extent. Decontrol of houses, if it is followed, as seems likely, by a general increase of rents, will interpose an effectual barrier to this process of decantation.

Your leading article refers to the relationship of the home to the workshop, and is no doubt written with

the special problem of London in view. Every large town has its own peculiar difficulties in this respect, but I am satisfied that the general principle which should be applied in rehousing schemes should be ease of access to the open air in the interests of children, rather than proximity to work in the interests of the breadwinner. Cheap transport enters into this question, of course, and Glasgow, with its 2*d*. fare all the way and cheap intermediate stages, has gone far to meet this especial difficulty.

I am, Sir, yours faithfully,

A. S. M. MACGREGOR, M.D., D.P.H.,
Medical Officer of Health, Glasgow.

June 27th, 1927.

THE DISTRIBUTION OF LEAD COLLOIDS.

To the Editor of THE LANCET.

SIR,—We now consider it wise to remove all the existing restrictions in regard to the distribution of choriotrope—that is, of preparations of lead, which have been under our control for use in the treatment of cancer. So many variations are now being made on the continent and in this country—some of which appear to be useful—that we have no longer the power or the right to check the use, in skilled hands, of lead in the treatment of malignant disease.

We hope and believe that the profession is now fully alive to the dangers that may be associated with the casual administration of this material, and that it will be employed only by those who can carry out the treatment safeguarded by laboratory tests. At the same time it will be recognised that any preparation that may be placed on the market, including material issued under the special name of choriotrope which we have allowed British Colloids Limited (Crookes Laboratories) to register, will no longer be under our control.

In conclusion, I should like to express my appreciation of the courtesy and coöperation of British Colloids Limited during a difficult time; they have always been ready to sacrifice commercial gains in the interests of research and the public weal.

I am, Sir, yours faithfully,

Liverpool, June 24th, 1927. W. BLAIR BELL.

MECKEL'S DIVERTICULUM.

To the Editor of THE LANCET.

SIR,—Dr. C. S. McEuen's report of an interesting case of Meckel's diverticulum (THE LANCET, Feb. 26th, p. 436) induces me to give yet another instance of this relatively rare, seldom diagnosed, and always dangerous condition. On the fifth day after birth the native midwife attending a male child noticed that the cord was not shrivelling, and snipped it off close with a pair of scissors. As the wound at the navel did not heal the child was taken to a doctor, who applied a simple dressing and saw the case daily for over a fortnight. During all this time no escape of fæcal matter or flatus was noted either by the doctor or the parents. On the twenty-fifth day after birth the child was brought to the hospital presenting at the region of the umbilicus a bleeding bicornuate tumour covered by mucous membrane, consisting evidently of an everted portion of small intestine. The upper horn of the tumour measured six inches in length, while the lower portion projected less than one inch from the umbilical skin margin. All attempts at gentle reduction failed even under anæsthesia. On opening the abdomen the narrow fibrous remains of the diverticulum, through which the gut had prolapsed, was incised and the intussusception reduced. The child died a few hours later from shock. The possibility of such a condition arising is mentioned in Spencer and Gask's "Surgery" (1910 edition); it must, however, be regarded as rare, and, with the more widespread training of midwives, will become even rarer.

I am, Sir, yours faithfully,

E. H. R. ALTOUNYAN.

Aleppo, Syria, March 18th, 1927.

DIPHTHERIA IN LONDON.

To the Editor of THE LANCET.

SIR,—I have read with great interest your leading article of June 11th on the Prevention of Diphtheria in London, and my attention has been particularly arrested by the last sentence in the first paragraph of that article. Referring to Dr. Forbes's report you say "his figures show the incidence and mortality of diphtheria to be higher in London than in any other large city in Great Britain, and higher than that of almost any other European capital." Dr. Forbes's figures, being taken from official sources, are, of course, correct for the period covered by his report, but I respectfully submit that they are not a true picture of the conditions as they exist to-day, and that the sentence quoted from your article is less than fair to London.

From the five latest quarterly returns of the Registrar-General—i.e., for the period Jan. 1st, 1926, to March 31st, 1927—I have extracted the diphtheria notifications and deaths in eight cities in England and Wales with populations over 300,000, and have calculated the annual incidence of the disease, the case death-rate, and the annual death-rate per 100,000 persons living. These figures are here tabulated, together with the mean death-rate for Edinburgh, Glasgow, Belfast, and Dublin for the same period, and also the death-rate during the first quarter of this year, particulars of which are available, for those cities in Europe and America with over 1,000,000 inhabitants.

Towns and population in thousands.	Jan. 1st, 1926, to March 31st, 1927.		Case death-rate per cent.	Per 100,000 living.	
	Notifications.	Deaths.		Annual incidence.	Annual death-rate.
West Ham (316)	901	22	2·44	228	5·5
Leeds (473)	561	43	7·66	95	7·2
Sheffield (523)	1,331	65	4·88	203	9·5
London (4605)	16,914	666	3·93	293	11·5
Bristol (383)	930	59	6·34	194	12·3
Liverpool (863)	1,952	134	6·86	181	12·4
Birmingham (934)	2,846	146	5·13	243	12·5
Manchester (752)	1,403	139	9·90	149	14·7
Edinburgh (426)	—	56	—	—	10·5
Glasgow (1049)	—	166	—	—	12·6
Belfast (416)	—	56	—	—	10·8
Dublin (421)	—	93	—	—	17·6
Aggregate & averages (11,161,000)	—	1645	4·74	242	11·8
Towns with more than one million inhabitants:—	January–March, 1927 (three months).				
Hamburg (1111)	—	9	—	—	3·2
Chicago (3101)	—	86	—	—	11·1
Warsaw (1015)	—	29	—	—	11·4
New York (5924)	—	184	—	—	12·4
Paris (2871)	—	92	—	—	12·8
Berlin (1993)	—	81	—	—	16·2
Aggregate & average (16,015,000)	—	481	—	—	12·0

From the table three deductions can be drawn.

First, it is true that the incidence of diphtheria during these five quarters in London was higher than in any large town in England. Whether this high figure is due to the returns being uncorrected for errors in diagnosis, &c., I cannot say, but returns from other towns are doubtless on a similar footing.

Secondly, the case death-rates in London and in West Ham, which is included in greater London, are unquestionably the lowest of any large town in England which suggests that in the *treatment* of diphtheria London occupies a very high position. I am aware that a reduction of the incidence figures would increase the case death-rate, but again that argument applies all round. It is also possible that London may have experienced during the past 18 months an unusually mild type of diphtheria, but the returns give no hint

that this is so, and we must accept the figures as they are printed.

Lastly, the actual death-rate from diphtheria in London, which is a definite figure not subject to variation from any alteration in the incidence, is, with the exception of West Ham, Leeds, and Sheffield, lower than that of other large towns in England. Moreover, with the solitary and phenomenal exception of Hamburg, London for the corresponding period is bracketed with Chicago as having the lowest actual death-rate—11·1 per 100,000 living—of all cities in Europe and America of over 1,000,000 inhabitants, of which the figures are given. In view of these facts you may possibly see your way to modify the statement in the passage quoted.

I am, Sir, yours faithfully,

50, Beak-street, W. THOMAS MABEN.

IMPETIGO CONTAGIOSA.

To the Editor of THE LANCET.

SIR,—Dr. J. B. Ellison's interesting paper upon the treatment of impetigo contagiosa which appears in your issue of June 25th leads me to ask whether the use of the unguentum hydrargyri nitratis dilutum of the British Pharmacopœia in this complaint has entirely dropped out. Although I remember various letters and papers upon impetigo in your columns and elsewhere, during the last 20 years or so, in which various remedies have been advised, especially the ointment of ammoniated mercury, I cannot remember one communication in which the acid nitrate of mercury was mentioned. Between the years 1886 and 1890 I had a fairly wide experience of this treatment at St. Bartholomew's Hospital, the Victoria Hospital for Children, and the Kensington Dispensary, and I never came across a case which did not clear up within a week at the most under the (dilute) acid mercurial nitrate ointment, provided that the crusts were gently removed previously by hot fomentations. I have no experience of flavine, but as I see that Dr. Ellison says that the average time for cure is ten days I would ask him to try the older remedy. Contrary to what might be supposed this does not seem to cause any pain.

I am, Sir, yours faithfully,

Forest Row, June 25th, 1927. H. P. CHOLMELEY.

QUININE AND CHINOSOL SUPPOSITORIES.

To the Editor of THE LANCET.

SIR,—Although the quinine suppository is practically harmless and is entirely satisfactory to the majority of people, the details of the many thousands of cases carefully studied at the C.B.C. Clinic for Birth Control have confirmed the view promulgated by Dr. Marie Stopes in 1918 that a few women apparently absorb sufficient quinine to cause sleeplessness, slight digestive disturbances, &c. A still smaller percentage of men find the quinine irritating to the glans penis. As the C.B.C. Medical Research Committee has always had the desiderata of improvement in technique before it, this has been carefully considered, and we think that your readers (who are probably often called upon to recommend some contraceptive suppository) may be glad to know that a new type of suppository composed solely of cocoa butter and chinosol has been tested at the Clinic and over 800 cases have found it entirely satisfactory.

The manufacturing chemists, Messrs. Lamberts, have proved very helpful in preparing different strengths and manufacturing for experimental use, and chinosol suppositories may now be obtained from the usually recognised sources.

We are, Sir, yours faithfully,

E. B. TURNER, F.R.C.S., F.R.C.P.
MAUDE KERSLAKE, M.B.
GEORGE JONES, M.A., M.B.
MARIE C. STOPES, D.Sc., Ph.D., F.L.S.
H. V. ROE (hon. secretary).

June 24th, 1927.

ANÆSTHETICS AND INQUESTS.

To the Editor of THE LANCET.

SIR,—Your leading article on this subject will be cordially welcomed and endorsed by those members of the profession whose daily work affords them ample evidence of the disadvantages of the present system.

I opened a discussion on this subject at a meeting of the Section of Anæsthetics of the Royal Society of Medicine, which was reported in THE LANCET (1923, i., 849). On that occasion I expressed my opinion as to the unsuitability of the coroners' court for inquiries of this nature, and I dealt in detail with most of the points brought forward in your leading article. In this letter I desire to confine my remarks to the aspect of publicity. Later experience has convinced me beyond any doubt that the publication of deaths under anæsthetics serves no useful purpose whatever, but on the contrary is both directly and indirectly a danger to the public for the following reasons. That these reports frighten patients is an indisputable fact which can be testified to by any practising anæsthetist. The report of one of these inquests, which for some reason or other has attracted unusual attention, is invariably followed by an increase in the number of ultra-nervous patients who come under our observation, some of whom actually attribute their nervousness to the reports which they have read. This is a grave danger to the public because it so frequently leads patients either to refuse operation or to postpone it until it is too late, and in very many instances the patients tell us that they dread the anæsthetic rather than the operation. I am quite sure that this unnecessary fear of anæsthetics is more widely spread than it used to be, and that it is due to the increasing prominence which is now given to these matters in the lay press. Moreover, it is not sufficiently realised how much the public suffer from the *indirect* effects of this publicity. Only those who are habitually in touch with hospital work can fully appreciate the damaging influence which the fear of these reports exercises upon the anæsthetic work of the student and of the hospital house officer. It renders the administration of anæsthetics the most unpopular of the house officer's duties, and in consequence men are apt to shirk during their hospital life the very branch of work in which experience and self-confidence are most essential to the safety of their patients.

Wise discrimination in the choice of the anæsthetic is of enormous importance, but it is indisputable that the dread of the publicity attached to inquests often tends to influence the administrator to disregard the claims of chloroform because of its slightly greater "on the table" risk, and to give long administrations of ether to the type of patient who will almost certainly develop postoperative chest trouble in consequence. Unless chloroform is to be entirely banished from our list of anæsthetic agents, it is essential that students shall be taught how to give it, but the publication of coroners' criticisms on the use of this drug is steadily killing the teaching of its administration in London hospitals. Again, it is the public who suffer, for many students go out into practice without having had any practical tuition in the administration of this anæsthetic, which, although the most immediately dangerous, is, in the hands of a competent administrator, very often the best so far the ultimate recovery of the patient is concerned. Is it not also possible that in desperate cases the patient is sometimes deprived of the last—although possibly forlorn—hope of saving his life by operation, because of the public odium which follows a death on the table?

In conclusion, may I ask the protagonists of full publicity to tell us what single advantage the public can gain from reading reports of anæsthetic fatalities, which will counterbalance the very serious disadvantages and dangers which I have described.

I am, Sir, yours faithfully,

Harley-st., W., June 28th. J. HENRY CHALDECOTT.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

A Cancer Campaign in Ireland.

A PUBLIC meeting to inaugurate the National Cancer Campaign (Ireland) was held in the Royal College of Surgeons, Dublin, on June 27th, under the presidency of the Marquis of Dufferin and Ava, Speaker of the Senate of Northern Ireland. The origin and object of the Campaign were detailed by Mr. Louis Cassidy, F.R.C.S.I., who is honorary secretary to the committee. For four years past investigations into the treatment of cancer by deep X rays has been carried on at the Coombe Hospital. This work is now to be transferred to the Royal City of Dublin Hospital, in connexion with which a department for cancer research is to be founded. Investigation of other lines of treatment will also be undertaken at once. A committee has been formed of representatives of the University of Dublin, Queen's University (Belfast), the Royal College of Physicians of Ireland, the Royal College of Surgeons in Ireland, the Royal Dublin Society, the Royal Academy of Medicine in Ireland, the Joint Committees of the British Red Cross Society and the Order of St. John, and the Royal City of Dublin Hospital. Dr. T. G. Moorhead, Regius Professor of Physic in Dublin University, has accepted the post of honorary director, and Dr. Itami, of Osaka, Japan, who was formerly engaged in research work at the Cancer Research Institute in London, has been appointed assistant director. Other workers will soon be appointed. The Joint Committees of the British Red Cross Society and the Order of St. John has given a sum of £5000, and a private donor has given £6500, and various other subscriptions have been received. The object of the meeting on Monday was to gain the attention of the public to the movement and to appeal for funds.

Lord Dufferin, as chairman of the meeting, stated that the appeal was made to the whole of Ireland, and that the people of Northern Ireland might be counted on to contribute generously. His Excellency the Governor-General of the Irish Free State proposed the first resolution, declaring that the Cancer Campaign was worthy of the support of all citizens of Ireland. The resolution was seconded by Sir Humphry D. Rolleston, Regius Professor of Medicine at Cambridge, who spoke of the previous contributions of the Dublin school to the development of the science of medicine. Having shown the urgency of the need for research in regard to cancer, he said that to enable this research to be carried out in Dublin an institute with whole-time workers and proper equipment was a sine qua non; when this was fully realised the necessary funds, even in these times of distress, should surely be forthcoming to attract and keep in Ireland the keen mind and high ability that are recognised on the other side of St. George's Channel as the special product of Ireland.

Rev. Peter Finlay, S.S., proposed that a subscription list should be opened on behalf of the campaign. He said that it was a happy augury that though the meeting was being held in the capital of the Free State and that the research would be concentrated there, the coöperation which was hoped for, and which, as that meeting testified, was already given, was not limited by boundaries of place or politics or religion. It was fitting that it should be so, for the disease recognised no boundaries, and neither should the remedy nor the search for the remedy recognise any boundaries. He urged that an appeal for assistance should be made to both Irish Governments as well as to the public.

Prof. Harvey Cushing, who seconded the resolution, opened with the question to his hearers: "Do you realise that one out of every ten of us here assembled is likely to die of cancer within the next decade?" Unless Ireland differed greatly from other countries in the incidence of cancer, and unless the population was already on the alert to recognise the early manifestations of the disease and their significance, a cancer campaign was very much needed here as in other countries. It was no less important that through the agency of some central institution Irish experts and Irish hospitals should be enrolled in the general crusade against such a formidable disease.

Honorary Fellowship of the Royal Academy of Medicine of Ireland.

The Royal Academy of Medicine of Ireland held a special meeting on June 27th to confer its Honorary Fellowship on Prof. Harvey Cushing, of Harvard University. The general secretary presented him to the Academy in the following words:—

Sir PRESIDENT, LADIES, and GENTLEMEN,—I have the honour to present to you one who does not need any introduction to this Academy. I rejoice that this is so, for indeed I should be at a loss to describe him fittingly. Eminent as a physician, as a surgeon, and as a physiologist, he has taken the whole realm of medicine as his province, and in that realm all acknowledge him as a chief. Intellectually he towers among his fellows, as those of whom he has written tower physically among ordinary mortals. His brilliant work commands our admiration, but he has won our love and gratitude by enshrining for us in two noble volumes the memory of his great master, so dear to us all. Let us then, as a fellow-worshipper at the same shrine as ourselves, receive him gladly; let us honour our Academy by enrolling him a Fellow, and let us for himself receive him with our loudest plaudits. Harvey Cushing!

Prof. Cushing was then admitted a Fellow of the Academy by Sir James Craig, President, and he returned thanks for his election. He then delivered a brief address dealing with his recent experiences in electro-surgical work, particularly in cerebral surgery.

Honorary Degrees at Dublin University.

Honorary degrees were conferred at the Summer Commencements of Dublin University, held on June 28th, on Sir Humphry Davy Rolleston, Regius Professor of Medicine at Cambridge, and on Prof. Harvey Cushing.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.—The eighty-sixth annual meeting will be held on July 18th to 22nd, under the Presidency of Dr. Hamilton C. Marr, at the Royal College of Physicians and the University, Edinburgh. On July 19th, in the morning, the annual meeting will be held. The Maudsley lecturer nominated for 1928 is Sir John Macpherson. In the afternoon the President will deliver an address on Dante and Rabelais: An Account of Two Mediæval Physicians, with a Summary of their Philosophy. On July 20th, in the morning, a discussion on Chronic Sepsis as a Cause of Mental Disorder will be opened by Dr. William Hunter; Sir William Willcox, Sir Berkeley Moynihan, Dr. C. Hubert Bond, Dr. H. A. Cotton, Dr. T. C. Graves, Lieut.-Col. J. R. Lord, Dr. W. F. Menzies, Dr. Adolph Meyer, and Dr. D. Chalmers Watson will speak. In the evening the annual dinner of the Association will be held at the Royal College of Physicians. On July 21st, in the morning, a discussion on Epidemic Encephalitis will be opened by Dr. Ivy Mackenzie, followed by Dr. J. G. Greenfield, Dr. R. M. Marshall, and Dr. G. Riddoch. Among the other speakers will be Dr. W. J. Adie, Dr. H. Devine, Dr. T. S. Good, Dr. E. Mapother, and Dr. W. A. Potts. On July 22nd, in the morning, a discussion on Points in the Lunacy Commission (England) Report—(1) What legal facilities are required for treatment? (2) How far is judicial intervention necessary? (3) What safeguards against improper detention are adequate?—will be opened by Prof. George M. Robertson. This discussion will be open to all interested in lunacy administration. The discussions will be held conjointly with the Section of Mental Diseases of the British Medical Association. In the afternoons visits will be paid to the Royal Hospital, Morningside, and to the treatment pavilion at Bangour Village, and an exhibition of work done in occupational therapy departments of Scottish mental hospitals. A memorial wreath will be placed on the bust of Pinel at Morningside at 9.45 A.M. on July 22nd by Sir H. Arthur Rose.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At the third examination for medical and surgical degrees held recently the following candidates were approved :—

Part I., Surgery, Midwifery, and Gynæcology.—G. M. Addison, F. M. Allen, A. F. Alsop, R. Anderson, G. H. Barendt, W. J. H. M. Beattie, H. Bell, S. A. Belshaw, P. G. Bentlif, G. J. O. Bridgeman, W. A. Briggs, C. F. Brockington, A. C. Brown, H. B. Bullen, H. J. Burrows, R. W. Butler, C. P. Campion, A. B. Connell, E. C. Cosgrove, G. A. Eason, E. G. Frewer, R. Gallimore, H. Girling, A. R. Glover, E. W. Hayward, J. S. Hensman, W. G. S. Hopkirk, E. T. James, M. E. Lampard, L. C. Lancaster, A. H. Lankester, E. W. Lindeck, W. N. Maclay, F. J. Milward, J. K. Moore, J. L. Newman, T. St. M. Norris, M. D. Nosworthy, D. E. Oakley, C. D. Politeyan, J. C. C. Poole, E. J. Pye-Smith, M. G. P. Reed, J. H. Richmond, E. E. F. Rose, P. G. Salt, M. R. Sinclair, T. C. Stevenson, G. R. S. Stewart, C. L. Stote, J. R. H. Towers, C. G. Townsend, C. F. Watts, J. R. S. Webb, E. Whidborne, W. J. Wilkin, D. B. Wilson, E. C. Wynne-Edwards.

Part II., Principles and Practice of Physic, Pathology, and Pharmacology.—C. Adamson, E. S. Bolton, P. R. Buckton, R. C. L'E. Burges, H. J. Burrows, R. W. Butler, R. D. Curran, C. E. Donaldson, T. D. W. Fryer, H. K. Goadby, F. Goldby, A. C. Hampson, V. C. J. Harris, J. A. Hartley, A. S. Hollins, W. G. S. Hopkirk, F. S. Hubbersty, C. E. Kellett, F. Kellett, F. H. King, A. H. Lankester, T. F. McNair Scott, A. W. C. Mellor, W. J. Montague, G. M. B. Morgan, K. A. Muir, M. F. Nicholls, E. A. Nicoll, G. F. Oakden, C. J. Ormerod, C. L. Owen, R. Pearce, R. A. Phillips, W. P. Purvis, D. N. Rocyn-Jones, H. J. A. Simmons, L. A. P. Slinger, H. Smith, G. M. Tanner, C. I. Tuckett, C. W. Walker, R. Watson, C. F. Watts, R. W. Windle, C. E. Woodrow.

Degree of M.Chir.—R. S. Corbett, F. W. Roques.

At a Congregation held on June 21st the following degrees were conferred :—

M.Chir.—F. W. Roques.
M.B. & B.Chir.—T. S. Dewey.
M.B.—F. W. Law.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated :—

Surgery.—S. A. Carr, Birmingham ; F. G. Hardaker, St. Mary's Hosp. ; S. Jenkinson, St. Bart.'s Hosp. ; H. I. Jones, St. Mary's Hosp. ; T. C. Lansdale, Guy's Hosp. ; H. S. Littlepage, Birmingham ; and S. K. Rigg, Bristol.

Medicine.—S. A. Carr, Birmingham ; R. P. Charles, King's Coll. and Charing Cross Hosp. ; T. C. Lansdale, Guy's Hosp. ; H. S. Littlepage, Birmingham ; D. D. Stidston, St. Mary's Hosp. ; and N. W. Wood, Middlesex Hosp.

Forensic Medicine.—G. Furniss, Manchester ; K. Girgis, Charing Cross Hosp. ; G. L. McDermott, St. Bart.'s Hosp. ; R. C. Pratt, Birmingham ; S. Slotar, Guy's Hosp. ; and S. le R. Switzer, London Hosp.

Midwifery.—K. E. Clarke, Charing Cross Hosp. ; G. Furniss, Manchester ; H. J. Harcourt, St. Thomas's Hosp. ; G. C. Rhys-Jones, Charing Cross Hosp. ; and I. O. B. Shirley, St. Thomas's Hosp.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery : S. Jenkinson, H. S. Littlepage, R. C. Pratt, S. K. Rigg, D. D. Stidston, S. le R. Switzer, and N. W. Wood.

UNIVERSITY OF GLASGOW.—At a Ceremony of graduation held on June 22nd the following degrees were conferred :—

Hon. LL.D.—Sir Charles Ballance (London), Prof. Murdoch Cameron (Glasgow), and Prof. Harvey Cushing (Harvard).

M.D.—With honours : Peter Laird M'Kinlay and Mary Macpherson Stevenson. *With commendation :* Mary Sloan Smith. *Ordinary degree :* William Simpson and William M'William.

Ph.D.—John Donald and Annabel Mary Tough Murray.

HARVEIAN SOCIETY OF LONDON.—A meeting will be held at the Star and Garter Hospital, Richmond, on Saturday, July 9th, at 4.30 P.M.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.—The annual oration of this society, which incorporates the London Dermatological Society, was delivered on June 22nd by Dr. H. Haxthausen, first assistant in the Skin Department of the State Hospital, Copenhagen, on Streptococcal Pityriasis. After a vote of thanks to the orator had been passed the annual general meeting of the society was held, and the following officers were elected for the coming session : Patron : The Earl of Chesterfield. President : Dr. Wilfrid Fox. Hon. treasurer : Dr. Knowsley Sibley. Hon. secretary and editor of Transactions : Dr. J. M. S. Scovell. The annual dinner was held at the Café Royal after the meeting. Dr. Haxthausen, Dr. J. H. Sequeira, Dr. J. A. Drake, Dr. A. M. H. Gray, Dr. Graham Little, Dr. H. MacCormac, Dr. W. J. O'Donovan, Dr. A. Whitfield, and Mr. Arnaudin were the official guests of the society.

EPSOM COLLEGE.—The annual general meeting of governors was held at the office, 49, Bedford-square, London, W.C., on June 24th, Dr. Raymond Crawfurd, the Chairman of the Council, presiding. The result of the elections to pensionerships and foundation scholarships was announced as follows, the scrutineers being Dr. Raymond Crawfurd, Sir Ernest Goodhart, and Dr. Seymour Taylor :—"Christie" pensioner : Charles W. J. Chepmell, 7411 votes. Ordinary pensioners : Fanny Dawson, 6798 votes, and Augusta M. Raper, 6456 votes. "Sir Thomas Smith" pensioner : Harriet E. Mullings, 5617 votes. Foundation scholars : John C. Stephens, 12,442 votes ; Charles H. F. Joy, 11,643 votes. The secretary reported that further vacancies having arisen, Dr. Edward J. Minchin, Mrs. Grace S. W. Dempster, and Mrs. Florence A. M. Swindlehurst would be appointed ordinary pensioners at a council meeting which would be held immediately after the annual general meeting. The Chairman moved the adoption of the annual report of the council to the governors, which showed that since the last annual general meeting W. J. Leaning had been awarded an open classical scholarship of £100 per annum at Pembroke College, Oxford ; C. E. C. Townsend had won an open Empire scholarship of £75 per annum at Loughborough Engineering College ; and E. A. Marsh had been awarded an open major scholarship in natural science of £100 per annum at Jesus College, Cambridge. Various important structural improvements have been made. The new chemistry block, which cost about £10,000, was opened by Viscount Grey of Fallodon on Founder's Day last year, and was in general use from the beginning of the Michaelmas term. The lower school annexe, providing washing, changing, and drying-room accommodation, which cost over £2500, had proved a great boon, and owing to the conversion of an old gymnasium near the lower school into class-rooms it had been possible to admit further boarders. The reorganisation of the heating and hot-water supply systems, which cost £8000, was completed by the opening of the Lent term, 1927, and the centralisation of these systems will result in a material economy in working. The funds for the provision of a new cricket pavilion, costing £3000, have been procured from old Epsomians, parents of boys in the school, the masters, members of the Council, and other friends of the College. A cordial vote of thanks to Dr. Raymond Crawfurd for the deep interest taken by him in Epsom College and its Royal Medical Foundation was moved by Mr. George E. Waugh, seconded by Dr. de Havilland Hall, and carried unanimously.

The Council will shortly award the following special scholarships :—

Leopold Salomons Entrance Scholarship.—The value of this scholarship is £50 a year, and it will be awarded to the son of a duly qualified medical man. Candidates must show an adequate standard of education for their age, and their financial position must be such as to make it impossible or difficult to obtain an education at Epsom College without the help of the scholarship.

St. Anne's Home Scholarship.—The value of this scholarship is £52 a year, and it will be given to a deserving and necessitous orphan daughter of a medical man who has been for not less than five years in independent practice in England or Wales.

Further particulars and forms of application for either of these scholarships can be obtained from the secretary, Mr. J. Bernard Lamb, at 49, Bedford-square, London, W.C. 1.

ST. THOMAS'S HOSPITAL MEMORIAL.—Last week the Duke of Connaught, President of the hospital, unveiled a large carved oak panel in the central hall in memory of those in the hospital who fell in the war, inscribed with the names of 74 students, a nurse, and 9 employees. Notwithstanding the recent opening of the students' residential club, it was thought fitting that the names of those who fell should be inscribed in the hospital itself. The Duke afterwards presented the Carnegie hero medal to Mr. Chisholm Williams, formerly a student of the hospital, in recognition of his services to radiology, of which he was one of the pioneers, together with a cheque for the first instalment of a pension from the fund.

NEW CONVALESCENT HOME FOR WIRRAL.—By the generous gift of their former residence at Noctorum, a suburb of Liverpool, as a convalescent home for children, Mr. and Mrs. Kielberg have added considerably to the facilities for the after-care of children. The Kielberg Convalescent Home, as the new institution is to be called, is affiliated to the Birkenhead and Wirral Children's Hospital, the pressure upon which will now be distinctly reduced. Not only have the generous donors given the house and grounds for this purpose, but they have also contributed considerably to the cost of necessary alterations and have promised an annual subscription of £500 for the next ten years.

THE Dame Louisa Aldrich-Blake memorial in Tavistock-square, London, W.C. 1, will be unveiled by Sir William Beveridge, Vice-Chancellor of the University of London, on July 4th, at 11.30 A.M.

A HOSPITAL FOR REDCAR.—The seaside resort of Redcar is growing so rapidly that it is considered that the time has come for it to be dependent no longer on the North Ormesby Hospital, ten miles away. A fund has recently been opened for the provision of a separate hospital.

SEAMEN'S DREADNOUGHT HOSPITAL, GREENWICH. Seven beds have now been endowed by the Seamen's Hospital Aid Committee since the end of the war. Mrs. Spencer Stidolph has just unveiled a tablet over the last of these in the Northumberland Ward, which has been dedicated to the memory of officers and men of the mercantile marine who lost their lives in the war.

PROPOSED HOSPITAL FUSION AT MIDDLESBROUGH.—A meeting is to be held shortly to consider the possibility of amalgamating the three large Middlesbrough institutions, the North Riding Infirmary, North Ormesby Hospital, and the Carter Bequest Hospital. Better accommodation is urgently required for convalescent patients where they can receive skilled treatment in pure air and pleasant surroundings.

NEW INFIRMARY AT DEWSBURY.—The foundation-stone of the new infirmary was laid at Dewsbury by Sir Mark Oldroyd. The new building will cost about £100,000, of which sum £70,000 has been promised and is in hand. The site chosen is close to the town, yet sufficiently removed from the main road to escape the noise of traffic. It will consist of two storys in blocks, so arranged as to obtain the utmost amount of sunshine. Sir Mark Oldroyd emphasised the desirability of maintaining the infirmary as a voluntary institution.

FURTHER HOSPITAL ACCOMMODATION FOR SWANSEA. Two recent additions testify to Swansea's determination to maintain its hospital reputation. A new isolation hospital on the most modern lines is in course of construction in place of a temporary building which has had to serve until now. It can accommodate 118 patients and a staff numbering about 40, and it is situated in a delightful district overlooking Swansea Bay. A new maternity hospital is being created out of an already existing building and 11 patients can be accommodated. The house stands in its own grounds with space for future extensions.

ORDER OF THE HOSPITAL OF ST. JOHN OF JERUSALEM. The King has sanctioned the following promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem: As Commanders: Dr. G. Locke, Lieut.-Colonel W. B. Cockill, Major J. Orton, Sir Berkeley Moynihan, P.R.C.S., Dr. U. Marks, Dr. C. J. R. MacFadden, Dr. I. G. Modlin, Dr. R. D. Thomas, Surgeon-Captain E. A. G. Wilkinson, R.N., Lieut.-Colonel F. T. Rees, Captain J. Anderson, Surgeon-Commander G. O. M. Dickenson, R.N., Dr. A. M. Ware, Mr. William C. Bentall, Colonel M. Maclaren, and Surgeon Vice-Admiral Sir Joseph Chambers. As Officers (Brothers): Dr. R. Laurie, Dr. A. H. Mackie, Captain G. W. Kendall, Dr. J. N. Robins, Dr. D. Holmes, Dr. R. J. Isaac, Colonel R. J. S. Simpson, Dr. R. J. Archibald, Dr. E. Llewellyn, and Dr. S. Williams. As Officers (Sisters): Dr. Margaret E. Lovett.

DONATIONS AND BEQUESTS.—Mr. Charles Herbert Millyard, Torquay, left £500 to the British Empire Cancer Campaign.—Mr. Russell Maule Stephenson, South Audley-street, W., left £500 each to the Cancer Hospital, Fulham-road, and the Hospital for Consumption and Diseases of the Chest, Fulham-road.—Mr. Duncan Graham Robertson, of Newbury, Berks, bequeathed £500 to Rossall School, Fleetwood, Lancashire; £500 to McLaren High School, Callander, to endow a bursary, and £200 to Newbury District Hospital.—Mr. H. Percy Shepherd, one of the city sheriffs, has given £1000 from the estate of his father for the Metropolitan Hospital Appeal Fund for the new nurses' home.—Dr. Alexander Laurence, formerly medical superintendent of the Cheshire County Mental Hospital, left estate of the value of £40,381. Besides various legacies, he left £250 to Chester Royal Infirmary, and the residue to his sister, and then to the Royal Medical Benevolent Fund.—Over £15,000 has been raised towards building a new hospital for Teddington and Hampton Wick.—Mr. Joseph Shoesmith, of Bright View, Halifax, Yorks, left £1000 each to the Royal Halifax Infirmary, John Abbott's Trustees Ladies' Home, and the Crossley and Porter Orphan Homes and Schools, and £2500 to other charities.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

LANDLORD AND TENANT BILL.

DURING the discussion in Standing Committee B of the House of Commons of the Landlord and Tenant (No. 2) Bill a question affecting the interests of doctors and other professional men was raised.

On Clause 4 (which deals with compensation for goodwill) Sir R. LUCE urged the advantages of extending the Bill to professional as well as business premises. He said he would like to deal particularly with the medical profession and dentists. It had been said by a member of the Committee that there was no goodwill in the case of a doctor, but he (Sir R. Luce) did not agree with that contention. It was true in the case of a Harley-street surgeon or physician that he could not create goodwill by living in a particular house, because the goodwill applied to the whole street; but it was not the same thing in the case of a doctor who started practice in a small town. He might take a house which had not been built specially for the purposes of a doctor, but after he had occupied it for a certain length of time it became a valuable site as a doctor's house. By his occupation of it a doctor would increase the value of the house and create a goodwill for which he was as much entitled to compensation as any business man. The same observations applied to the case of a dentist. There was also the question of improvements. It frequently happened that a doctor who took a house was obliged to improve it in certain ways to meet the needs of his profession. It was almost essential that a doctor's house should have a garage, for instance; and in view of what was required of doctors under the National Health Insurance Acts a practitioner might be compelled to improve his surgery accommodation. If he was forced to do that at his own expense he was entitled to compensation when he left the house, because in all probability it would be taken by another doctor for whom it would have a special value in view of the improvements which had been made.

The CHAIRMAN: We cannot discuss the question of improvements now. We are dealing with the question of goodwill only.

Sir R. LUCE said he thought that it was understood that he might deal with improvements because the Committee were dealing here with a definition which raised the whole question of whether a doctor should come within the provisions of the Bill.

Mr. WOMERSLEY said he would like to support Sir R. Luce in his claim for extending the provisions of the Bill to professions, but he suggested that he should raise the matter when they came to Clause 12.

Captain HACKING (Under Secretary for the Home Office) said he thought that Sir R. Luce was quite right in raising this point at that stage because the words "or profession" would have had to be added if the amendment were made on Clause 12. He was afraid, however, that he could not agree with the arguments of the hon. Member. During the past few months he had been unfortunate enough to have been under many doctors, and he could assure Sir R. Luce that he did not go to a doctor in Harley-street because he was in Harley-street. He required to know something more about him than that before he paid him a visit. He did not think that a doctor or a dentist could leave goodwill behind. He happened to have as his medical adviser a brother of an hon. Member on that Committee. Quite recently he moved from one part of London to another. He (Capt. Hacking) did not go to the successor who came to his medical adviser's house, but he followed his own doctor to his new address because he liked him and had faith in him. It was very unlikely that he left goodwill behind him in the case of any other of his patients. The value of a doctor as an individual had to be taken into consideration, and none of his goodwill attached to his premises when he left. It was the determination of the Government not to extend the Bill to include the medical profession, and he must therefore decline to accept the amendment.

Sir W. PERRING said that in industrial areas there was a large number of men carrying on business as dentists in first-floor rooms situate above business premises. People had been in the habit of going to such dentists because they knew they were at a particular address, and if for any reason a landlord refused to renew the tenancy and a dentist left and another dentist came in his place, a large number of working people would go to his successor, having no notion of following a man about. There was no comparison between the case of a dentist in an industrial area and some specially distinguished dentist or doctor such as Capt. Hacking had

referred to. He (Sir W. Perring) dared say he would do the same as Capt. Hacking had done ; in fact, he had followed an oculist from one neighbourhood to another, but that was not the common practice of people in large industrial areas. He thought, therefore, that the Committee ought to look at this question from a different angle from that at which the Under Secretary had viewed it ; otherwise they might be creating hardship for a man who had built up a good business.

Mr. WITHERS said he hoped the Government would not consider the question of including the professions as being closed when the Committee came to the definitions, because there was really something to be said in favour of goodwill attaching to the professions.

Sir R. LUCE said that the Under Secretary had not replied to the question of the Bill applying to improvements made to the premises of professional men. He had given no reasons why a doctor who had been forced to improve his property very considerably should not be put in the same position as any other man who had had to improve his premises for business purposes.

The CHAIRMAN said that the question of improvements ought not to be raised here. It ought to be raised when the Committee came to Clause 12.

The amendment was negatived.

The Committee adjourned.

MIDWIVES AND MATERNITY HOMES (SCOTLAND) BILL.

On Friday, June 24th, the Midwives and Maternity Homes (Scotland) Bill, as amended in Standing Committee, was considered on Report.

Mr. BARCLAY-HARVEY moved the following new clause :—

"Where in any district there are not in operation arrangements made by the local authority for attending to the health of expectant mothers and nursing mothers, and of children under 5 years of age, in accordance with Section 3 of the Notification of Births (Extension) Act, 1915, the local supervising authority shall, upon receiving reasonable notice, provide the services of a midwife or a duly qualified medical practitioner for the purpose of attending a woman in childbirth, and the provisions of Subsection (4) of Section 22 of the principal Act shall apply for the purpose of the local supervising authority recovering such fee in respect of the aforesaid services as may be determined according to a scale fixed by the Scottish Board of Health as they apply to the fee paid to a registered medical practitioner called in in the case of an emergency."

He said that the object of Clause 1 of the Bill was to improve the service of midwives in Scotland. It had been urged in Committee that as a matter of fact in that clause they were not doing anything to help poor people to get maternity treatment, and this new clause had been designed to meet that point. It would now be possible to give this necessary assistance in all cases.

Dr. DRUMMOND SHIELS seconded and the clause was agreed to and added to the Bill.

Mr. BARCLAY-HARVEY moved an amendment to Clause 1 (Amendment of Section 1 (2) of Midwives Scotland Act, 1915) designed to ensure that improperly trained people should not be able to look after women in midwifery cases.

Mr. WESTWOOD seconded the amendment. He said that there was every desire in all parts of the House to pass this Bill, and as a result of long negotiations the provisions of this clause and this amendment had been accepted by all parties.

Mr. HARDIE said he wished to be sure on one point. There were some cases in Scotland where a neighbour went in to give some assistance in a midwifery case. If a fatality occurred would such a woman be brought under this Bill ?

Mr. BARCLAY-HARVEY : No, I think she is protected.

The amendment was agreed to.

On the motion for the third reading of the Bill,

Mr. MACPHERSON asked the promoters of the Bill whether they would not reconsider, when the Bill reached the House of Lords, Subsection (2), which says :—

"If any person being either a male person or a woman not certified under this Act attends a woman in childbirth otherwise than under the direction and personal supervision of a duly qualified medical practitioner, that person shall, unless he or she satisfies the Court that the attention was given in a case of sudden or urgent necessity."

Sudden emergencies arose, he said, very often in remote country districts where there was no doctor or certified nurse, and very often the crisis was dealt with through the neighbourliness of a woman living near. It was an extreme hardship that a neighbour who attended a woman in this way should be asked to go to court to explain why she so attended.

Dr. SHIELS said that Mr. Macpherson was evidently not familiar with the proceedings on this Bill. This matter had been thoroughly considered in Committee and both sides of the Committee had consulted together with a view to meeting the special difficulties in the Highland districts, and amendments had been inserted which, in the opinion of those best qualified to judge, entirely met the difficulty which the right hon. gentleman had put forward.

Mr. W. WATSON, the Lord Advocate, said that he quite appreciated the force of what Mr. Macpherson had suggested. Although, in form, Clause 1 provided that certain things constituted an offence, unless a particular defence could be set up they would only reach that stage if the Procurator Fiscal had decided that there was to be a prosecution. It really was important that in cases where a little friendly help had been given in an emergency there should not be a prosecution, and those who were familiar with the practice of Procurators Fiscal would rest content that they would never bring a case into court where only a little friendly help had been given.

The Bill was read the third time and passed.

POOR-LAW ADMINISTRATION IN WEST HAM.

On Monday, June 27th, the House went into Committee of Supply on a vote to complete the sum necessary for the salaries and expenses of the Ministry of Health.

Mr. GROVES moved a reduction in the vote of £100, in order to call attention to the administration of the new West Ham guardians. He said that the infantile mortality in the district had risen since the nominated guardians had been in office. In 1924 the infantile mortality-rate was 73 per 1000 ; in 1925 it was 65·9. In October, 1926, it went up to 82·4, and in November, 1926, it was 62·5. In all those cases the percentage was below the figures for the great towns of the country. In January of this year the death-rate rose to 100·4 ; in February it was 101 ; in March 104, and in April 104. In each instance these figures were above those of the great towns.

Miss SUSAN LAWRENCE said that the present board of guardians in West Ham had cut down the maximum amount of relief for a single person to 11*s.* a week. How was it possible for an old person to live on the balance, after paying 4*s.* 6*d.* or 5*s.* a week for rent ? The guardians claimed to have saved about £15,000 in salaries. They had done so, partly by making the nurses in the workhouse infirmary work longer hours. Their hours had been increased from 48—which prevailed in all good hospitals—to 56. That was a cruel proceeding on the part of the guardians, as the work of the nurses in this infirmary was particularly heavy. They had to deal with the worst venereal disease and cancer cases in London. Another result of the board's policy was indecent and unhealthy overcrowding. Since the relief had been cut down people had been sub-letting one of their rooms in order to take lodgers. On every humane ground the present West Ham guardians were to be condemned.

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health), replying to the debate, said that with regard to the administration of the Blind Persons Act he could assure the Committee that considerable progress was being made. One test of the work that was being done was provided by the assistance afforded both by local authorities and the State. In 1921–22 local authorities were only contributing £14,600 in that respect, whilst this year it was estimated that it would be not less than £173,828. The contributions from the State in 1921 amounted to £69,886, whilst this year they were estimating £113,000 for the same object. He was glad to say that there had been no reduction in the assistance given from voluntary sources. In 1922–23 the total income of the 130 voluntary agencies, to which grants were given, was £378,535, and in 1925–26 it had risen to £420,463. He thought that it would be a great mistake to rely solely on the State.

As regards the position of affairs in West Ham, the 12 months' period for which the new guardians were appointed expired on July 18th next. So far from being dissatisfied, as some Members had suggested, with the administration of the new board of guardians, the Minister, and, he thought, the great majority in the House and in West Ham, took the view that these new guardians had carried out their work with great success, with great benefit to the district, and without doing any harm to a single deserving person. Holding that view, the Minister had taken the necessary steps to continue the appointed guardians for a further period of six months, which was the maximum period of extension allowed by the Default Act.

The motion to reduce the vote was defeated by 235 to 75.

PATENT MEDICINES DUTY.

On Tuesday, June 28th, the House went into Committee on the Finance Bill, Captain FITZROY, Deputy Chairman of Committees, in the chair.

On Clause 2, which proposes to make permanent the additional excise duty imposed on patent medicines by the Finance (No. 2) Act of 1915,

Sir R. HAMILTON moved that the duty should be extended only to August 1st, 1928. He said this duty was doubled in 1915 as a purely war measure, and the Chancellor of the Exchequer now proposed to keep that double duty for all time, and not bring it up for annual review as the amendment suggested.

Mr. R. MCNEILL (Financial Secretary to the Treasury) said this was not a tax that fell in any true and wide sense on medicine as understood to-day, because there was an exemption provision under which anything that came under the heading of a regular medicine recommended by a doctor escaped the tax. This very old duty was an anomalous one in many respects, and, if they were devising an ideal fiscal system, it was very likely that this particular duty would not find a place in it. But it had in fact been regarded by the public and the trade as unobjectionable. The only question raised by the amendment was whether the additional duty, which was put on during the war, should be put on a permanent basis or not. The original tax was on a permanent basis, and it would be an absurdity to have the other half on an annual basis.

Mr. HARRIS said that the tax was hidden from the public sight, and was therefore a very dangerous one. When people bought patent medicines they were often not conscious that they were making a contribution to the revenue. This was a war tax and ought to be reviewed. To say that the words of the Act of 1812, which governed the imposition of the duty, were suitable for the purpose, was to stretch the imagination. That Act contained four pages of patent medicines advertised as taxable, but not one in ten of them could be bought to-day in any chemist's or grocer's shop in the country. Before the tax was made permanent, the Committee should be quite clear that the words governing its imposition were founded on sound principles and intelligible to the public. The words in the Act of 1812 were out of date. He asked the Financial Secretary to the Treasury to reconsider the whole matter by next year and to redraft the governing words.

Commander O. WILLIAMS said he was not at all sure that almost as many people were not injured by drinking medicines as by drinking other beverages. He hoped that in framing next year's Budget the Chancellor of the Exchequer would consider the possibility of lowering the duty on British medicines and raising it on foreign medicines.

Sir E. HILTON YOUNG said that if a small fancy tax was not bad in itself, that might be a very good reason for not taking it off. No doubt very large profits were made by the vendors of patent medicines, very largely through the credulity and ignorance of their fellow countrymen. If a patent medicine was sold and contained nothing that was not in the ordinary Pharmacopœia then the unfortunate purchaser would be paying ten times more than the article was worth. In that case it was just that the vendor should make some contribution to the revenue. If there were some special knowledge or secret of manufacture contained in the article sold it was in the public interest that that secret knowledge should be placed at the general disposal of the whole medical profession. In the event of that not being done it was right that the vendor should pay for his retention of useful knowledge from the public benefit.

The amendment was rejected by 249 votes to 125.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 22ND.

Training of Midwives in Scotland.

Major MACANDREW asked the Secretary of State for Scotland what is the position with regard to a grant for Scotland in connexion with the training of midwives.—Sir JOHN GILMOUR replied: I have come to be of opinion that there is a need for further trained women in midwifery in Scotland, and it has been arranged to offer a training grant, not exceeding £20 per head, for nurses who have taken a full nursing training to the satisfaction of the Scottish Board of Health and who are now prepared to take the Central Midwives Board qualification and give an undertaking thereafter to give two years' service in Scotland. The total grant for the current financial year is limited to £2000.

Water-supplies and Lead Contamination.

Sir ROBERT THOMAS asked the Minister of Health whether he had any information regarding the danger to public health in districts where the water-supply is drawn from lead-bearing strata.—Mr. CHAMBERLAIN replied: I do not know of any district where there is such danger. Lead compounds are found in many different kinds of rock formation, but water naturally containing lead is very rare. Water which will act upon lead pipes is not uncommon, but precautions are taken where necessary.

Consultant and Specialist Medical Service.

Mr. HORE-BELISHA asked the Minister of Health whether any decision was reached at the recent consultation of his department with the consultative council regarding the recommendations made by the Royal Commission on National Health Insurance that the scope of the benefit should be extended to include a consultant and specialist medical service, and that the necessary funds for this purpose should be obtained by a partial pooling of future surpluses of approved societies.—Mr. CHAMBERLAIN replied: I have not yet received from the consultative council any expression of their views on the recommendations referred to by the hon. Member.

Medical Examination of Pauper Casuals.

Mr. FENBY asked the Minister of Health whether he had any evidence that boards of guardians were complying with the circular of his department suggesting that casual paupers should be periodically medically examined. — Mr. CHAMBERLAIN replied: The suggestion which I made was that a medical officer should periodically inspect the casual wards and should do so if practicable at a time when he could also see the casuals, so as to satisfy himself that they are free from disease. I have not received any special reports of the extent to which this suggestion has been put into practice, but I have no reason to suppose that it has not been effective.

THURSDAY, JUNE 23RD.

Poisonous Cosmetics.

Mr. DAY asked the Minister of Health whether he had received any reports from the officers of his department to the effect that many cosmetics being sold at the present time were poisonous and when applied to the skin might cause definite injury to health, and would he consider introducing legislation for the purpose of bringing the sale of cheap cosmetics, shampoo-powders, lip-sticks, and hair-dyes under public control.—Mr. CHAMBERLAIN replied: I have not received any such reports and I have at present no reason for supposing that any action on my part is required.

Infantile Mortality in London Boroughs.

Mr. WILLIAM THORNE asked the Minister of Health the infantile mortality in the boroughs of Poplar, Paddington, Kensington, Chelsea, Westminster, Marylebone, and West Ham for the year ending March, 1927.—Mr. CHAMBERLAIN replied: The most recent figures available are those for the calendar year 1926, which are as follows:—

	Deaths.		Deaths
Poplar ..	.. 71	Westminster	.. 61
Paddington ..	.. 86	Marylebone	.. 85
Kensington ..	.. 61	West Ham	.. 62
Chelsea ..	.. 65		

Deaths under 1 year per 1000 births.

Contamination of Ice.

Miss WILKINSON asked the Minister of Health whether his attention had been called to the conditions in which quantities of ice which might be used in drinking fluids were carted through the streets, and whether he would take powers to ensure cleanliness in the interests of public health.—Mr. CHAMBERLAIN replied: I am advised that the risks to health arising from surface contamination of ice under the circumstances to which the hon. Member refers are not such as to call for the institution of special measures.

Alleged Lax Certification by Doctors.

Mr. WHITELEY asked the Minister of Health whether his attention had been called to the inquiry held by the medical service subcommittee of the Durham County Insurance Committee into the question of lax certification by the doctors in the eastern part of the county during 1926, and, if so, whether he proposed to take any action in the matter.—Mr. CHAMBERLAIN replied: Yes, Sir. I have received a report of this inquiry, but in the absence of any specific recommendation by the Insurance Committee I am not in a position to take any action in the matter.

Orthopædic Treatment of Children.

Mr. BROAD asked the Minister of Health what local authorities undertook orthopædic treatment for children below school age; what authorities worked in conjunction with voluntary agencies; and whether in all cases the Ministry defrayed 50 per cent. of the cost to the authority.—Mr. CHAMBERLAIN replied: The councils of 35 administrative counties, 36 county boroughs, and 58 other boroughs or urban districts in England and Wales have made arrangements for the orthopædic treatment of children below school age, and all of them except one work in conjunction with voluntary agencies as respects the whole or part of their arrangements. In all cases but one, in which the cost is defrayed out of trust funds, a grant amounting to 50 per cent. of the approved net expenditure of the local authority on the service is paid by the Ministry.

Local Authorities and Accident Funds.

Mr. HAYES asked the Minister of Health what local authorities have set up their own accident and workmen's compensation funds in connexion with their trading

services.—Mr. CHAMBERLAIN replied: The general law does not empower a local authority to set up its own accident and workmen's compensation fund. I am advised that 46 authorities have obtained powers by local legislation since 1900 to set up such funds in connexion with their trading or other services, but I do not know to what extent the powers have been actually exercised.

Deaths of Women in Childbirth.

Sir WALTER DE FRECE asked the Minister of Health whether his attention had been called to the fact that the death of women at childbirth continued unabated; whether he could give the number of such deaths during the last ten years, indicating when the maternity benefit came into force; and state what, in the opinion of his medical advisers, were the grounds for the absence of any diminution of this type of mortality.—Mr. CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. The answer to the second part involves a tabular statement. The earliest date at which maternity benefit became payable was Jan. 13th, 1913. As regards the third part I am sending my hon. friend a copy of a report on maternal mortality, by Dame Janet Campbell. The following is the statement:—

England and Wales: Deaths of Women in Childbirth, 1917–26.

Year.	Births registered.	Deaths of women classed to pregnancy and child-bearing.		Deaths of women not classed to pregnancy and child-bearing, but returned as associated therewith.	
		No.	Rate per 1000 births registered.	No.	Rate per 1000 births registered.
1917	668,346	2,598	3·89	638	0·95
1918	662,661	2,509	3·79	2,529	3·81
1919	692,438	3,028	4·37	1,337	1·93
1920	957,782	4,144	4·33	1,086	1·13
1921	848,814	3,322	3·91	925	1·09
1922	780,124	2,971	3·81	1,051	1·35
1923	758,131	2,892	3·81	764	1·01
1924	729,933	2,847	3·90	849	1·16
1925	710,582	2,900	4·08	759	1·07
1926	694,563	2,860	4·12	709	1·02

The number of deaths of women in childbirth affords no indication of the trend of maternal mortality during the last ten years, in consequence of the abnormal variations in the number of births during that period. The numbers of births registered and the mortality of mothers per 1000 births have therefore been added.

Protection of Soft Fruit from Contamination.

Miss WILKINSON asked the Minister of Health if he would take powers to ensure that strawberries and other soft fruit difficult to wash without damage, should not be exposed to flies and the dust of the streets, but that some protective covering should be used.—Mr. CHAMBERLAIN replied: I will consider the hon. Member's suggestion.

Condensed Milk.

Lieut.-Colonel HOWARD-BURY asked the Secretary of State for War whether he would encourage the use of fresh milk, or condensed milk of British origin, in preference to the large amount of foreign condensed milk now used in the army.—Commodore D. KING replied: So far as War Office contracts are concerned preference is given to condensed milk of home manufacture, and for some time past no condensed milk of foreign origin has been purchased.

Lieut.-Colonel HOWARD-BURY asked the First Lord of the Admiralty whether he would encourage the use of fresh milk, or condensed milk of British origin, in preference to the large amount of foreign condensed milk now used in the navy.—Lieut.-Colonel HEADLAM replied: My hon. and gallant friend has been misinformed. The condensed milk purchased by the Admiralty is made in England. Fresh milk is supplied whenever practicable for use in Fleet establishments on shore and harbour ships.

Slum Clearances and Playing Fields.

Sir ROBERT THOMAS asked the Minister of Health whether, in schemes for the clearance of slum areas in poor parts of London, particularly the East End and the south side, provision was made not to rebuild on certain spaces, but to reserve them as playing fields.—Mr. CHAMBERLAIN replied: Schemes for the clearance of slum areas may provide for the reservation of part of a cleared area as an open space, and such provision has been made in some London schemes. It is usually found, however, in London, that the land is either too expensive or is required for carrying out the rehousing obligation under the scheme owing to the lack of other suitable sites which could be used for such a purpose.

MONDAY, JUNE 27TH.

Tuberculosis and Nephritis in the Navy.

Sir BERTRAM FALLE asked the Parliamentary Secretary to the Admiralty the number of ratings invalided from the Royal Navy in the year ending March 31st, 1927; and the numbers invalided for tuberculosis and for nephritis and other kidney and bladder troubles, respectively.—Lieut.-Colonel HEADLAM (Parliamentary Secretary to the Admiralty) replied: The figures for the year ending March 31st, 1927, are not available, but during the year 1926 (Jan. 1st to Dec. 31st) 1725 rating were invalided. In the same period the number invalided for tuberculosis was 197, but the figures for nephritis and other kidney diseases and bladder troubles will not be available for some months.

Fatal Small-pox Case at Hampstead.

Mr. GROVES asked the Minister of Health whether he was aware that the fatal case of small-pox from King Henry's-road, Hampstead, removed to the Dartford Small-pox Hospital, was a woman who had been vaccinated in infancy and revaccinated at the age of 11 years; and whether he could state the source of infection in this case.—Sir KINGSLEY WOOD replied: My right hon. friend is informed that this woman, who was 40 years old at the time of death, was said by her mother to have been unsuccessfully vaccinated in infancy, and was not revaccinated at the age of 11, her history in that respect having been confused with that of her sister. The source of infection has not been traced.

Schools for Mentally Defective Children.

Mr. HARRIS asked the President of the Board of Education what were the terms of reference to the departmental committee appointed by the Board to consider matters relating to mentally defective children; had the committee taken any evidence from witnesses; when was the committee likely to make its report; and, having regard to the fact that the development of schools for mentally defective children was being held up pending the findings of the departmental committee, had the Board any intention of asking for an interim report.—Lord E. PERCY replied: As regards the first part of the question, I would refer the hon. Member to the reply given by me on March 24th. I understand that the committee have not called witnesses, and that they hope to be able to report early next year. There appears, therefore, to be no occasion to ask them to consider making an interim report.

Mr. R. MORRISON: In view of the uncertainty among a number of local authorities as to what exactly is the policy of the Board of Education toward the provision of special schools for mental defective children, will the right hon. gentleman facilitate the publication of this report, or make some further statement so that local authorities may know exactly what they are expected to do?

Lord E. PERCY: No, sir. I do not think there is any uncertainty in the mind of the local authorities. Any authority which wishes to consult the Board can do so at any moment.

Mr. MORRISON: Does the right hon. gentleman wish the local authorities to understand that no further provision in the direction of schools for mentally defective children is to be made?

Lord E. PERCY: The hon. Member is not to understand that. He is to understand that the authorities are free to consult with the Board in connexion with any project for special schools which they have in mind.

Mr. MORRISON: Is the right hon. gentleman aware that a considerable number of local authorities have submitted plans for special schools for mentally defective children, and, as they have not met with the approval of the Board, they are in some doubt on the matter?

Lord E. PERCY: I do not think that after the communications they have had with the Board that they can be in any doubt at all.

School-children and Vaccination.

Mr. GROVES asked the President of the Board of Education whether his attention has been called to the action of the Newport education authority in excluding from the Newport secondary school a girl, 15 years old, on the ground that she was unvaccinated; and whether, in view of the ruling of the Board in the year 1909, and of the action it had taken in other similar cases, he would intervene on behalf of this school-girl and secure her readmission to the school.—Lord E. PERCY replied: My attention has already been called to this case by the hon. Member for Newport (Mr. Clarry). I understand that the local authority excluded this girl from the school on the advice of the school medical officer, acting in conjunction with the borough medical officer of health, owing to the prevalence of small-pox in the area outside the borough in which the girl lives, but that they are prepared to readmit her to school provided

that her parents are willing to allow her to live within the borough so long as the epidemic continues. In these circumstances I do not think that I should be justified in interfering with the action taken by the authority on the recommendation of their competent medical advisers.

Mr. LANSBURY asked whether this action did not really over-ride the Act of Parliament which enabled the parents of a child to decide whether or not it should be vaccinated.

Lord E. PERCY: It is entirely open to a parent to decide whether a child shall be vaccinated; but the law does not force any other parent, or those responsible for the children of other parents, to expose other children to risk.

TUESDAY, JUNE 28TH.

Wounds and Sickness among British Troops in China.

Lieut.-Colonel Sir FREDERICK HALL asked the Secretary of State for War what was the total number of troops of all ranks now in China; what was the approximate daily cost of maintaining this force; and how many casualties there had been from wounds, sickness, or other causes up to the present time.—Sir L. WORTHINGTON-EVANS replied: As regards the first part of the question, in addition to the normal establishment of three infantry battalions, there are at present stationed in China and Hong-Kong 17 infantry battalions and one marine battalion, with ancillary troops. As regards the second part, I would refer my hon. and gallant friend to the reply which I gave on May 2nd. As regards the last part of the question, 1 soldier has been killed, 2 officers and 9 other ranks have been wounded, and 9 other ranks have died as the result of illness or accidents. The average weekly number in hospital during the four weeks ended June 17th was 22 officers and 895 other ranks.

Lieut.-Commander KENWORTHY asked if the figure of 900 officers and men in hospital was not abnormally high?

Sir L. WORTHINGTON-EVANS: Very fortunately, it is not. The medical officers are very satisfied with the figures. The percentage is quite good.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

TUESDAY, July 5th.—5 P.M., Notice for Fellows only. Annual General Meeting of Fellows. MacAlister Memorial: The new Episcope, forming part of the memorial to the late Sir John MacAlister, has now been installed in the West Hall. It is proposed to demonstrate its powers from 4.30 to 5 P.M. Tea will be served from 4.30 to 4.55 P.M. To elect by ballot the Officers and Council for the session 1927–28.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, July 4th, to SATURDAY, July 9th.—FELLOWSHIP OF MEDICINE DEMONSTRATIONS. Tues., 2 P.M., at Royal Chest Hospital, demonstration by Dr. Barty King. Tues., 2.30 P.M., at Central London Throat, Nose, and Ear Hospital, demonstration by Dr. Dan McKenzie. Those desirous of being present at this demonstration please notify hospital—Museum 1539. Fri., 5 P.M., at Royal Westminster Ophthalmic Hospital, lecture-demonstration by Mr. M. L. Hine, Iritis and Cyclitis. These demonstrations are free to all members of the medical profession.—CITY OF LONDON HOSPITAL FOR DISEASES OF THE HEART AND LUNGS, Victoria Park, E. Special course in all branches of diseases of the chest.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART Westmoreland-street, W. Intensive course.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Lecture-demonstrations at 5 P.M. daily throughout the week. Further information from the Secretary.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, July 4th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.

FRIDAY,—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, July 4th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Ironside: Medical Out-patients.

TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Addison: Operations. 3 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Scott Pinchin: Medical out-patients.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 11 A.M., Mr. Simmonds: Orthopædic Department. 2 P.M., Mr. Donald Armour: Operations.

FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 11 A.M., Dr. Pritchard: Modern Methods in Medicine. 2 P.M., Mr. Sinclair: Surgical Out-patients.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department and Ward Visit. 10 A.M., Dr. Owen: Medical Diseases of Children.

Operations, Medical, Surgical, and Special Out-patients Departments daily, 10 A.M. to 5 P.M. Saturdays, 10 A.M. to 1 P.M.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, July 7th.—4 P.M., Mr. Eric Lloyd: Acute Mastoiditis.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, July 5th.—3.15 P.M., Mr. A. M. Zamora: Mastoid Infections, their Complications and Treatment.

Appointments.

Bolingbroke Hospital, Wandsworth Common: HALDIN-DAVIS, H., M.D., B.Ch. Oxf., F.R.C.S. Eng., Physician Dermatologist; MARTIN, J. P., M.D. Belf., M.R.C.P. Lond., Assistant Physician Neurologist; VINER, G., M.D. Lond., F.R.C.S. Eng., Assistant Ophthalmic Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: SHEPHARD, W. H., L.R.C.P. Lond., M.R.C.S. (Sheerness District of the County of Kent); POMEROY, W., L.R.C.P. Lond., M.R.C.S. (Dursley District of the County of Gloucester).

Vacancies.

For further information refer to the advertisement columns.

Barbados Lunatic Asylum.—Asst. Med. Supt. £500.

Birmingham and Midland Eye Hospital, Church-street.—Physico-Therapist to Ultra-Violet Ray Dept. £100.

Birmingham University.—Walter Myers Travelling Studentship. £300.

Bradford, Royal Eye and Ear Hospital.—Res. H.S. £120.

Cardiff City Mental Hospital, Whitchurch, near Cardiff.—Second Asst. M.O. £350.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.

City of London Hospital for Diseases of the Heart, &c., Victoria Park, E.—H.P. At rate of £100.

Croydon County Borough.—Asst. M.O.H. and Asst. School M.O. £600.

Doncaster County Borough.—Asst. M.O.H. and Tub. O. £600.

Federated Malay States, Central Mental Hospital.—Second Asst. Med. Supt. £700.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. £50 for six months.

Indian Medical Service.—Appointments.

Infants Hospital, Vincent-square, Westminster.—Anæsthetist.

Kent Education Committee.—School M.O. £600.

Leamington Spa, Warneford General Hospital.—Res. H.S. At rate of £150.

Leeds City Sanatorium, Gateforth.—Res. M.O. £400.

Leeds Public Dispensary.—Jun. Res. M.O. £150.

Liverpool, Smithdown-road Institution.—Res. Asst. M.O. £200.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. At the rate of £120.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Hon. Asst. Gynæcologist.

Mitcham, Eagle House.—M.O. £1 1s. per visit.

Nelson Hospital, Merton, S.W.—M.O. At rate of £100.

New Delhi, India, Lady Hardinge Medical College.—Clin. Pathologist. Rs.450 per mensem.

Rochford Union.—Dist. M.O. and Public Vaccinator. £120 and vaccination fees.

Royal Army Medical Corps.—Commissions.

Royal College of Surgeons of England.—Examiner in Dental Surgery.

Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. £100. Asst. P. to Electro-Light and Massage Depts. Also Hon. Anæsthetist.

Royal London Ophthalmic Hospital, City-road, E.C.—Hon. P. Also Second H.S. At rate of £125.

Royal Northern Hospital, Holloway, N.—Surg. to Ear, Nose, and Throat Dept. Also P.

St. Paul's Hospital for Diseases of the Genito-Urinary Organs, Endell-street, W.C.—Res. M.O. and H.S. At rate of £200 and £150 respectively.

Southampton, Royal South Hants and Southampton Hospital.—Jun. H.S. At rate of £150.

Stockport Infirmary.—H.S. and H.P. Each £175.

Stoke and Wolstanton Union.—Second Asst. Res. M.O. £200.

Stoke-on-Trent, City of.—Chief Tuberc. O. £750.

Sudan Government, Wellcome Tropical Research Laboratories, Khartoum.—Asst. Bacteriologist. £E.720.

Sunderland County Borough.—Asst. M.O. for Maternity and Child Welfare. £600.

Swansea County Borough.—Asst. M.O. £600.

West End Hospital for Nervous Diseases, Welbeck-street, W.—Hon. Reg.

West London Hospital, Hammersmith-road, W.—Res. Asst. S. £200.

Willesden General Hospital, Harlesden-road, N.W.—Phys. in Charge of Dept. for Dis. of Skin. Also H.S. At rate of £100.

Wolverhampton and Staffs Hospital.—H.S. At rate of £150.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Darlaston, Staffs, and Warlingham, Surrey.

Births, Marriages, and Deaths.

BIRTHS.

HABGOOD.—On June 23rd, at Wolverton House, Old Wolverton, Bucks, the wife of Arthur H. Habgood, D.S.O., M.B., of a son.

HIGHMOOR.—On June 21st, at Litcham, Norfolk, the wife of R. A. Highmoor, M.A., M.B., of a daughter (stillborn).

MACGILLIVRAY.—On June 25th, at Palmerston-place, Edinburgh, the wife of A. G. MacGillivray, M.B., Ch.B., High Hesket, Carlisle, of a daughter.

PLIMMER.—On June 24th, at Marloes-road, W., the wife of John Plimmer, F.R.C.S. Edin., of a son.

MARRIAGES.

MCFADDEN—SANTOS.—On June 20th, 1927, at Shaw Parish Church, Newbury, by the Rev. Kingsley Kefford, assisted by the father of the bridegroom, George Dickson Fisher McFadden, M.Ch., F.R.C.S. Eng., fourth son of the Rev. Jackson and Mrs. McFadden, of Badoney Manse, Newtownstewart, to Gasparina Amelia, youngest daughter of the late Mr. Antonio Luiz dos Santos and Mrs. Santos, of Rio de Janeiro, Brazil. At Home, 12, College-gardens, Belfast, Sept. 12th, 1927.

MORTON—SCOTT.—On June 18th, at Free Church, Hampstead, Garden City Suburb, Robert Morton, M.B., Ch.B. Glasg., to Anita Ballantine, only daughter of the late Charles F. Scott, Glasgow, and Mrs. Scott, London.

REID—WYMAN.—On June 25th, at Holy Trinity Church, Brompton, Andrew McKie Reid, *M.C.*, F.R.C.S., of Liverpool, to Clodagh, only child of Major Ronald Wyman, T.D., J.P., and Mrs. Wyman, of Thurloe-square, London.

ROBERTSON—PALMER.—On June 24th, at St. Mary's, Sullington, John Robertson, M.A., M.D., to Evelyn May, elder daughter of the Rev. Canon Palmer.

ROWLANDS—EVANS.—On June 23rd, at the Welsh Presbyterian Church, Mile End, London, John Jenkin Rowlands, M.R.C.S. Eng., L.R.C.P. Lond., to Eleanor Evans, grandchild of the late Rev. John Evans, Abermeurig, Cardiganshire.

DEATHS.

DAWSON.—On June 26th, at 46, Queen-street, Edinburgh, James Walker Dawson, M.D., D.Sc., F.R.C.P., F.R.C.S. Edin., aged 57 years.

HIGGINSON.—On June 26th, at a nursing home, after an operation, Charles Gaskell Higginson, M.D., M.A., of Portland-road, Edgbaston, aged 68.

KENNAN.—On June 20th, of pneumonia, Richard Henry Kennan, M.D., F.R.C.S.I., of St. James's-road, Liverpool, Medical Adviser to the Colonial Office, aged 59.

SIMPSON.—On June 20th, suddenly, at Walmer, after an operation, John Simpson, M.D., late of Carleton-road, Tufnell Park, London.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Mr. W. R. Morris has been elected President of the Radcliffe Infirmary in place of the late Lord Valentia. Mr. Morris, who has lived all his life in Oxford, has long been a vice-president of the hospital.

Notes, Comments, and Abstracts.

THE BOTTLE OF MEDICINE.

Being an Abstract of an Address delivered before the Hunterian Society

BY W. THOMSON BROWN, *M.C.*, M.B. EDIN.

BOTTLE-GIVING is felt to be an unsatisfactory part of medical practice. In operative surgery we walk by sight and not by faith; in preventive and pathological medicine we have theories which seem on the whole trustworthy and fruitful; but in treatment by medicines we have next to no system. We seem still to be (as they say) ignorant empirics, our only dicta *sentire est scire* and *post hoc, ergo propter hoc*, and our only safeguard from these fallacies the collection of statistics to establish a correlation between drug and result.

Pharmacologists and Clinicians.

It is not to be wondered at that there are differences of opinion. "Where knowledge is most imperfect," said Samuel Gee, "there are sects most numerous," and the imperfection of our knowledge includes ignorance of the nature and causes of disease, of the mode of action of drugs in disease, and of the indications properly to be met by drugs. We further find great difficulty in predicating anything of an exact nature when the factors in the recovery of health are so complex, and when even in the very act of dispensing physician, patient, and bottle form an inseparable trio.

As a way of escape from this all too human trinity we turn first to the pharmacologists. But here we too often find that they are ploughing with our heifers. We find a drug clinically useful; they will then try to give experimental proof of its action and loci of action. Their experiments sometimes assist the intelligent use of a valuable drug, but their negative results do not outweigh clinical opinion. The experimentalist himself is often an undisciplined theorist and sometimes at best discovers only an empirical remedy or diagnostic trick. Pharmacology has, however, done one important service to drug therapy in its translation of the ancient doctrine of signatures. We no longer justify by some fanciful association of form or origin the use of foxglove for cardiac disease, of walnut shells for head injuries, or of powdered mummy for prolonging life. We have transferred the signature from the plant to the molecule of its active principle. We now uphold a relation between action and chemical constitution, and MacDonagh maintains a relation between action and the electrical charge of the active atom in the molecule. These generalisations have led to the discovery of many new and valuable drugs and dyes. There is the further difficulty of the right use of drugs. "The chief weakness of medicine," said Sydenham, "is not our ignorance of the ways and means by which certain indications may be satisfied, but our ignorance of the particular indications that want satisfying. How I can make a patient vomit and how I can purge and sweat him are matters which a druggist's shop-boy can tell me off hand. When, however, I must use one sort of medicine in preference to another requires an informant of a different kind, a man who has had no little practice in the arena of his profession." Collective experience helps us somewhat. We see the wisdom of not giving drugs to spoil a diagnosis, to remove incentives to causal treatment, or to remove a beneficial symptom. Affirmatively, we use drugs to attack the chief associated factors in disease, to break a vicious circle, to control an automatic habit, to remove a complication retarding recovery, or, in many disorders, to obtain desirable and predictable results.

Theories.

There is no doubt that the significance of the bottle depends greatly upon what theory of disease we hold; and we all have theories. "Theorising in physic is unavoidable," said Cullen. "Every practitioner has proof of the propensity and presumption of his patients in this respect and among physicians themselves, though they can declare that Paracelsus was a knave, Van Helmont a madman, and Descartes a fool, and that all theory is nonsense, yet I find that they certainly employ it themselves . . . . The persons who employ it may not perceive they are using theory, but they are, and that of a bad kind too." Yet a poor theory is better than none and is often highly fruitful in discovery. Generalisations—and not the mere collection of therapeutic tips and wrinkles—are the main glory of medicine. "The vision is the virtue."

Perhaps the most striking feature of present-day theory is the conception of relativity. We no longer conceive

of things as endowed with their own power, but view everything in terms of relations. The worth of life no longer depends upon the liver. Diseases are functions of interdependent variables, such as man, microbe, and environment. Drugs are not expected to act as in health so in disease, as in one patient so in another. The *vis medicatrix naturæ*, personality, and the will no longer seem autonomous powers. We are compelled to study a patient and his environment as a whole. We realise that vomiting may be due to an indigestion of food or an indigestion of experience; that digitalis not only relieves a dropsy but reconstitutes a mental state; that very many factors are involved when a patient recovers health. Physician, bottle, patient, and environment form an almost inseparable complex group of relations, and hence, in the words of J. A. Lindsay, "there are few things more difficult than to establish a fact in therapeutics."

How Do Drugs Act?

Sceptics argue that: (1) "Nature heals the disease while the remedy amuses the patient"; or (2) the self-healing power is favoured mainly by externals—e.g., nursing, rest of mind and body, abstinence from food; or (3) the doctor's personality and not the drug sets the self-healing power in motion. These objections are a testimony to our ignorance of prognosis. Patients vary, germs vary, environment varies, and prognosis varies with them. The only perfect control for the therapeutic experiment, the patient himself, is of necessity excluded. All the same our profession claims to possess a fair degree of discrimination in these matters. Collective and personal experience in time do give us some conviction of the individual merits of nature, nurse, and medicine, and I should think a good many of us would say that the older we get the firmer becomes our faith in medicines. If the faith of some of us approximates to a mere dependence upon drugs, it is, perhaps, considerations of the suggestive power of personality, of the bottle as a vehicle of suggestion, of the successes of homœopathy, that make us doubt any but our own individual clinical results, that make us doubt even them.

Are the effects of all but a few drugs merely suggestive effects? It is hard to answer. But here I may note one curious fact. Some convinced sceptics about drugs have the most profound and wilful ignorance of psychotherapy. Believing that the drugs they use act only by virtue of personality and suggestion, they simultaneously declare that psychotherapy is synonymous with charlatanry. Would it not be better consciously to make a rational psychotherapy a part of rational medicine; would not the scope of drug therapy be rendered more manifest thereby?

Psychotherapeutic Weapons.

If personality and suggestion do the work of the bottle, how do they do it? To begin with, personality is not a mystic power residing in the doctor, but merely a set of relations between doctor and patient. That which impresses a patient favourably enhances medical personality; that which gives a contrary impression diminishes it. To a large extent one makes one's personality with a patient as one proceeds with him; personality is a suggestive technique. A "good bedside manner" is a developed medical personality. Again, this suggestive technique, dispensed along with the bottle must, to be therapeutically useful, benefit the patient's body. The patient's reaction to suggestion must be a total reaction of mind and body; his apprehension, his taking-of-it-all-in, must have a bodily expression. We find such total reactions in what we popularly term emotions. These emotions reified in names like fear, joy, anger, grief, are named from the subjective aspect, but as we meet them clinically they are bodily modifications to be interpreted, or for the purpose of suggestion, bodily modifications to be induced. Of these the two great therapeutic groups are ease of mind and confidence. "In quietness and confidence shall be your strength," said Isaiah. In terms of bodily expression, ease of mind admits of muscular relaxation, confidence of settled coördinated activity. Ease of mind is induced by rational means by widening the relations of the patient's consciousness to that end; confidence chiefly by proceeding from one accepted fact or truism to another. A degree of both emotions may be induced by giving a bottle, but reasoning is incomparably more powerful.

Now let us apply all this to the treatment of a case of nulliparous dysmenorrhœa without local abnormality. (1) We may give drugs for the symptom (aq. menth. pip., or a coal-tar derivative) and the patient is relieved. (2) We may suppose a fault in the endocrine system and try a bottle of tablets supposed to supply hormonic deficiency. The patient is not infrequently benefited. (3) We may take a wider view and say: This pain is the genuine sign of a real bodily disturbance. Of what bodily disturbances altogether is this girl the subject? We inquire as to conditions of work or of home life; as to visual or general fatigue. Is there anæmia present, oral sepsis, or constipation? We prescribe rest, a holiday; iron and arsenic, laxatives, or a visit to the dentist or oculist. Again the patient benefits. (4) If not lucky so far we may call in the surgeon; but perhaps we are premature: our diagnosis of bodily disturbance is still incomplete. What of the bodily expression of fear, hatred, and disgust? If the patient confess to a lively degree of such emotions, she should be given reasons why she should feel none of them towards the body generally, towards periods or towards sex. Here, again, the treatment is strikingly beneficial—so successful, indeed, that I believe there should be a place in classification for emotional dysmenorrhœa.

In my own experience I have known cases in which the simple discussion of confessed enduring emotion was the necessary antecedent to rapid recovery—e.g., a case of chronic hoarseness (duration two years); cases of loss of weight (on the average a stone being gained in a month); a case of cardiac insufficiency in mitral stenosis (marked dyspnœa on climbing a stair before treatment; after treatment, ease in spring-cleaning a house); a case of hemiplegia in cerebral embolism from aortic valvular disease (hemiplegia removed in 20 minutes; the finer movements of the hand remained paralysed); a case of enlarged thyroid with tachycardia (three months treated at a heart hospital, restored to normal in both respects in three weeks by talk).

It is clear that we have to study patients as a whole; in many cases the drug, in others the emotional comfort of tangible treatment, in others the deep comfort of "reasoning together" are indicated separately or in combination.

Lay Criticisms.

We are told by apparently intelligent lay people that all drugs are harmful and ought to be abolished, this being coupled with the question: "Why do you give poisons to people to make them well?" Shakespeare makes Timon of Athens say to the thieves—

> "Shun the physician,
> For his antidotes are poison, and he slays
> More than you rob."

It is only fair to say that there has been a medical school of therapeutic nihilists—doctors who advised the disuse of drugs altogether and a return to expectant treatment. Hoffman invented Hoffman's anodyne, but lived to say: "Fuge medicos et medicamenta, si vis esse salvus"; Addison often forgot to prescribe; Skoda used to say, when treatment was suggested, "Ach, das ist ja alles eins"; Hebra used "to feign treatment to prove that skins got well"; Hahnemann had a period of scepticism before he introduced the small dose; Sir William Gull affected a bread pill.

In reply we may say that the number of valuable drugs is, unfortunately, quite small; "drugs are seldom enough by themselves without other treatment, drugs are often of little use, drugs may be given in toxic or lethal doses, but we refuse to admit drugs are never of any use" (Gee).

There will always be diseases, and any method of attacking them which experience finds to be useful is worth exploring to the limit.

There is no clear line of demarcation between foods and drugs in respect of harmfulness. It is admitted that drugs can be given by fault, ignorance, or inadvertence so as to do harm to a patient. Yet in the sense of what goes into our poison cupboards, a poison is merely a word, a convenient label to group together substances, whose toxic dose is very small. In the sense of harmful to the body as a whole, drugs become poisonous by excessive dose in a given form to a given patient in a given time. We do not give poisons except by mistake, chiefly when the therapeutic and toxic doses lie very close together, or, in a few persons, when the toxic dose is less than the average therapeutic dose, or when a drug with an intended beneficial action has a dangerous subsidiary action, or when a toxic dose of a substance is formed in an incompatible mixture.

It may be remarked that it is an inadequate form of speech to say "I treated the patient with bromide and digitalis," or "I gave him a purge," when the result was unknown. We do not give digitalis simply; we are called upon to give suitable doses of digitalis in a given form to a given patient. There is much scope here for individual experience. Bromides, digitalis, belladonna, sodium salicylate, afford striking examples of action varying according to circumstances.

A patient of mine had non-cancerous jaundice and enlarged liver for some months. She consented finally to see a specialist whose prescription did no good. In desperation she dosed herself with 8 gr. of calomel. The jaundice disappeared, but she was confined to bed for several weeks afterwards with symptoms suggesting cerebral thrombosis from lowered blood pressure. She is now doing well and her liver is no longer enlarged; but she confessed that she

would have changed her doctor at once had I dosed her like that.

Popularity of the Bottle.

The newspapers tell us that patients, especially panel patients, take too much medicine. "Humbug gives it; 9*d.* for 4*d.* buys it; and superstitious credulity gulps it down." Every great Panjandrum in the friendly society world is in agreement with this. Panel patients take home bottle after bottle for so many weeks on end that I expect we shall soon return to the fine eighteenth century custom of including in the dower of a bride a good large silver medicine-spoon. But what is the general practitioner to do? In general practice treatment is dictated by the patient, and patients, as Epictetus said, "are displeased with a physician who doth not prescribe for them and think he gives them over." Similarly, in surgery it may be good practice to open a quinsy—but not everybody's quinsy.

An old lady came to me for several weeks getting medicine. I finally said: "Age will not be denied; medicines cannot cure you. In the absence of any acute symptoms I should spend your money on better things than drugs." She merely went to my partner for medicine and never called me in again. Is my idea of truth to be pushed into people willy-nilly? Are incurables to be called incurable to their faces? Some people cannot bear the truth; some will not have it. So we give a bottle, and so doing we satisfy the patient, we save trouble in investigation, according to the old jibe, "mist. gent. alk. and no proper diagnosis"; we cover our ignorance, we use a handy vehicle for helpful suggestion, *and* we get the man's money, and righteously, too, because we feel so orthodox about it! The patient gets bismuth and soda, kaolin, or alcohol, and does not need to stop smoking; his troubles are diminished, he has something to lean on; the responsibility is off his shoulders. He is glad that the doctor "doesn't want to know too much" and he gets something for his money besides talk. "It's easy to talk," he will say, "but that stuff was worth a guinea a bottle."

People hate to be improved, to have their illusions bluntly dispelled. A patient of mine was intensely angry at the recent exposure of a wonder-working proprietary remedy which her daughter was using. She said it ought not to have been allowed—taking away people's faith like that. She was sure that the paper which exposed the facts had grievously harmed many a poor consumptive.

It takes years to educate the public, and no one can be educated against his will. Some drugs are manifestly of use, why not all? "My doctor knows what to give me if yours doesn't." Bring up a child on the bottle and when he is old he will not depart from it. The bottle will never be abolished, but let us, in prescribing its contents, bear in mind Roger Bacon's list of impediments to knowledge: too great dependence on authority; allowing too great weight to custom; fear of offending the vulgar; and the affectation of concealing ignorance by the display of a specious appearance of knowledge.

ORTHOPÆDIC NURSING.

NURSES who have to do with the clinics for crippled children, which are now scattered over many counties, will be interested in a little book recently published by Miss E. C. Pearce.[1] The author's training and experience have been such that we may be sure that a handbook by her on this subject will be sound and practical. In the introductory chapter Miss Hunt characteristically lays stress on what she considers to be the duty of the orthopædic nurse. Not only is the latter to carry out the orders of the orthopædic surgeon and generally supervise instruments and splints and their management, but she is to teach mothers how to feed, clothe, and discipline their children. Miss Pearce makes good use of the small space at her disposal, and deals briefly with anatomy and with the diseases and deformities included in the specialty. To an appendix is delegated the important subject of the application of plaster-of-Paris, the nursing of patients in splints and jackets, and the preparation of the skin before operation. Some of the space taken up by descriptions of diseases and deformities, which the nurse does not have to diagnose, might well have been devoted to a fuller account of splints and plaster and their management. Much of the surgeon's work may be rendered vain if the nurse is not quick to recognise the first signs of undue pressure or friction, and if she does not know how to obviate or relieve such troubles. The page and a half on displacement of cartilages at the knee-joint seem to us superfluous in such a work.

Miss Pearce's book should prove very useful to those for whom it is intended.

[1] A Text-book of Orthopædic Nursing. By Evelyn C. Pearce, Sister Tutor, Fazakerley Hospitals and Sanatorium; and Agnes Hunt, Surgical Home, Oswestry. With a foreword by Sir Robert Jones. London: The Scientific Press. Faber and Gwyer, Ltd. 1927. Pp. 155. 5*s*.

CLINICAL PATHOLOGY AND THE USE OF STAINS.

IT is a complaint commonly heard from the busy practitioner that much as he would like to make use of them he has no time for the practice of the aids to diagnosis afforded by laboratory methods. So far as the more elaborate procedures are concerned this is no doubt true enough, but probably a good many of the medical men who make the complaint fail to realise how simple and how quickly and easily carried out are many of these miscalled laboratory procedures. The British Drug Houses have performed a valuable service in publishing a small pamphlet drawing attention to the simpler methods of clinical pathology and setting forth their technique. To the pamphlet is appended a list of standardised dyes and other reagents in common laboratory use from which the practitioner can make his choice. The inclusion of some procedures, such as the preparation of paraffin sections, suggests a somewhat optimistic view of the time at the disposal of the average practitioner, but much of the technique described could be carried out by any medical man in his consulting room. This kind of work would add new interest to the life of many a practitioner who finds the routine work of general practice monotonous.

HOME-GROWN CHEESE.

SAVE in a subsidiary way cheese does not play the substantial part which it deserves as a food among many classes of the community in this country, perhaps for the reason that reliance cannot always be placed on its quality. It is encouraging, therefore, to find that at a meeting of the English Cheddar Cheese-makers' Federation, which was held in the Town Hall, Highbridge (Somerset), on June 21st, the Duke of Somerset, the president, entered a plea for a wider interest among farmers in the production of good cheese with a view to successful competition with colonial products and the enlistment of the sympathy of the Government in promoting the prosperity of the industry. As arable land was increasingly turned into pasture, and more milk was being produced, something had to be done with the surplus supply, especially to retain its valuable vitamin content. At the present time, he said, there was an enormous quantity of imported and factory-made cheese sold as "Cheddar," and some system of standardising and stamping cheeses should be employed in order that the public might know what they were buying. Other speakers emphasised the importance of grading cheeses, and Mr. C. Harden, of Bridgwater, submitted a resolution urging the prohibition of the import of machine-skimmed condensed milk, admittedly unfit for infants' food, which amounted last year to 230,400,000 tins, an increase of 17,000,000 over the previous year. Mr. John Day, of East Pennard, a producer of tuberculin-tested milk, seconded the resolution, which was carried with acclamation.

AN UNUSUAL CASE OF FOREIGN BODY.

To the Editor of THE LANCET.

SIR,—A few days ago I was stopped on the road by an old man of 87 who said that while he was trimming a hedge on the previous day something had got into his eye, and would I please pull it out? On looking at the eye in an indifferent light I was surprised to see that the outer side of the conjunctiva appeared black. In a better light I removed a piece of smooth and stiff leaf which was neatly applied to the eye and large enough almost to obscure the conjunctiva on the outer side of the eye. The fact that the old fellow calmly put up with it for 24 hours and would not then have troubled unless he had chanced to meet me seems extraordinary.—I am, Sir, yours faithfully,

Clevedon, June 25th, 1927. R. L. WASON, M.R.C.S.

WANTED—AN EXPLANATION.

To the Editor of THE LANCET.

SIR,—Some two years ago I had to open a bottle of mineral water without an opener, and got my first right finger badly cut across the nail ¼ inch below the top. It took about ten days to heal; the nail partly came off.

I have just now the fourth recurrence of the injury—all are alike. I notice across the nail of the right index-finger a white line which appears without any apparent cause. This gets ragged (¼ inch below top of nail), and the nail gradually splits and bends at the white line, and eventually breaks off, just as if the accident had recurred at the time.

This persistent phase of organic memory is rather puzzling to me; but no doubt some reader can elucidate it. I have the split nail just now, and the lesion is fully as great and troublesome as before.—I am, Sir, yours faithfully,

A. T. SCHOFIELD, M.D.

Ryde, Isle of Wight, June 25th, 1927.

THE LANCET

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Lady Jones Lecture

ON

NEW CONCEPTIONS IN THE PATHOGENESIS OF SCIATIC PAIN.

Delivered at the University of Liverpool on March 10th, 1927,

BY PROF. V. PUTTI,

ISTITUTO ORTOPEDICO RIZZOLI, BOLOGNA.

IN this lecture I want to unfold a subject which has attracted my attention for many years and which I consider of general interest. What practitioner, indeed, is not interested in the discovery of the causes and cure of a disease, whose predominant symptom is pain?

There is a Latin saying: *Divinum est sedare dolorem.* If pain implies physical suffering, this divine labour is entirely entrusted to the wisdom and humanity of the doctor. Is not our highest, noblest, and most difficult task the endeavour, within our limitations, to soothe, diminish, and occasionally to abolish physical pain? For mental pain, man is his own best physician. One of the great tragic poets, Alfred de Musset, has said: "L'homme est un apprenti, et la douleur est son maitre." But for all that, will-power, moral training, self-control—none of them suffice to banish physical pain. Who but the doctor can hope to attain success, and what practitioner is indifferent to the great warfare against pain?

For the past four years and more I have been studying the subject of the causation of sciatic pain. I have had the opportunity of studying this symptom with vast clinical material, with dissections, and, above all, with a very rich collection of radiographs. While I was in the midst of my investigations, publications by French and American authors appeared which threw much light on the subject, and which suggested to me new points for observation. It has, therefore, seemed to me useful to communicate to you now my results up to date.

Amongst painful diseases, sciatica occupies a foremost place by reason of its prevalence, its production by a great variety of conditions, the great disablement it may produce, and its tendency to relapse; all of which have long ago led to its recognition as one of the great scourges of humanity. It has been known as long as medicine has been studied, but it has only been recognised as a clinical entity since an Italian physician, Domenico Cotunio, gave a complete description of it, towards the middle of the eighteenth century. The ancients named it ischias, and "De Ischiade Nervosa" is the title of the book in which Domenico Cotunio gave its clinical picture. Hence it was long called Cotunio's disease. The name of this great Neapolitan practitioner should not be unfamiliar to you, for it is to him we owe the first accurate description of the fluid contained in the meninges, the cerebro-spinal fluid, or Cotunio's fluid. Cotunio was not only the first to isolate sciatica as a clinical entity, but he also made a distinction between anterior and posterior sciatica, a differentiation which is based on good anatomical grounds and still has considerable clinical value.

Since the time of Cotunio, chiefly through the efforts of neurologists, the symptomatology of sciatica has been increasingly well defined, and to-day we may say that we have the complete clinical picture, and the differential diagnosis is easy. The same cannot be said of the pathology, which remains obscure in many respects. Orthopædic surgeons began to occupy themselves with the subject of sciatica when it was found that in many cases it was associated with deformities, and often took origin from malformations and diseases of the skeleton. Charcot was one of the first to draw attention to the frequent association of sciatica with vertebral deformity, and Brissot first coined the term "sciatic scoliosis," that is to say lateral curvature due to sciatica.

I already denoted sciatica a *symptom*, and such, I think, it should be considered, at any rate from the clinical standpoint. It is only when the pain is due to direct involvement of the nerve by the pathological process that sciatica can be considered a primary disease, and this is rare. In the majority of cases sciatica is only a manifestation of diseases external to the nerve, or at any rate the nerve is only involved as part of a constitutional disease. It is well known that diabetes, syphilis, alcoholism, lead poisoning, and other general toxæmias may cause sciatica by inducing inflammatory and degenerative changes in the nerve. These are true forms of neuritis and can be classed as alcoholic, diabetic, syphilitic, and so on, from the disease primarily responsible. In other cases, the cause is local, and pain is due to compression or irritation of the nerve-trunk at some point or other in its course. Such causes are: tuberculosis, syphilis, vertebral tumours, pelvic and other tumours, as well as fractures. Such secondary sciatica may have an infinite variety of causes, but these have no special interest for us at the moment.

The most common type of sciatica is not of these. It appears and progresses without obvious cause, or, to use the Latin expression, *sine materia.* It is usually called "essential" or "idiopathic sciatica," two rather meaningless words, which were created to indicate our ignorance of the origin and nature of the morbid process. Essential sciatica is sometimes called rheumatic sciatica, because it frequently develops after chills and in individuals of rheumatic or gouty constitution. It thus forms part of the neuro-arthritic syndrome, to which so much attention was formerly paid.

NATURE AND PATHOLOGY OF SCIATIC NEURALGIAS.

But, as a matter of fact, the true nature and mechanism of production of these neuralgias remained in complete obscurity until a few years ago—witness the innumerable therapeutic measures which had been evolved for their treatment. The cause being unknown, attempts were made to treat the results. But it is obvious that symptomatic treatment inevitably yields only unreliable, or incomplete, results, and it may be said that up to the present day there has been no rational, radical cure of idiopathic sciatica.

As the researches of the past few years have thrown much light on the subject, let us consider for a moment our points of departure and of attainment.

As is well known, the nervous system is responsible for the function of sensation. In the absence of nerve-fibres, there is no feeling, and hence no pain. There arise in every organ and every part of the body simple sensory nerves and also sympathetic sensory fibres, which, by various routes and various relations, conduct impressions from the periphery to special receiving centres, and such impressions as reach the cerebral cortex are perceived there as sensations. Any irritation of these sensory fibres in any part of their course induces, through stimulation of the cerebral cortex, the sensation of pain. Thus the cause of the pain may have situations as diverse as the types of irritation.

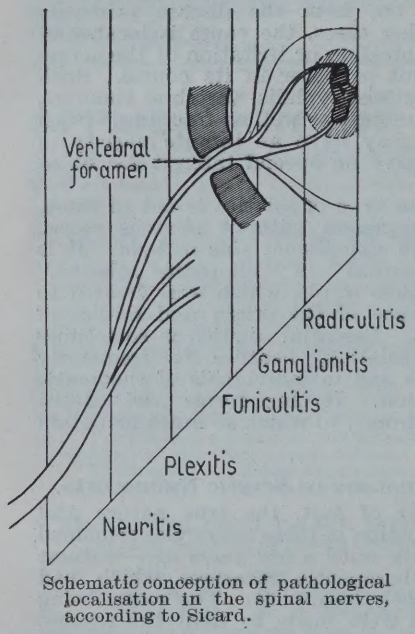
Localisation of Site of Irritation.

As regards diagnosing the level of irritation: if one considers the enormous length of the sensory tracts, one will realise how difficult it may be to localise the cause of pain. The irritation may occur in the peripheral nerve, in the plexus, in the spinal root, in the spinal cord, or in the brain. Pain, as such, has no localising sign. In quality there is no difference between pain originating in the spinal cord and in the peripheral nerve. There are certain gradations in quality, but these are too subtle and

variable to have distinctive value. For example, the pain of sympathetic origin, the so-called causalgia, has a burning, dry character. Root pains tend to be stabbing, crushing, or lightning pains, but as these phenomena are subjective and impossible to measure, we are dependent on the patient's description of them, which introduces an element of uncertainty. Conversely, it is well known that pain of central origin may be referred to the periphery, the classical example being the paræsthesia of amputated limbs. Alternatively, pain of peripheral origin may be referred to the centre.

For all this, there exist certain characters distinctive of certain levels of irritation, from which can be constructed a topographical classification of types of pain. From early times the term neuralgia has been reserved for pain arising in the peripheral nerve, that is the segment of nerve formed by the fusion of various roots in the plexus and extending to the periphery of the limb. Dejerine drew the clinical picture of *Radiculitis*, a form of pain resulting from disease of the nerve roots in the plexus. An even more careful analysis of clinical findings has enabled Sicard and his pupils to differentiate another type which is due to stimuli affecting the segment of nerve between the spinal root and the plexus, as it traverses the intervertebral canal. Sicard has named this part of the nerve trunk the funiculus, the little cord, and has called the pain syndrome, due to irritation at this level, funiculitis. Sicard and his pupil, Forestier, have attempted to give an anatomatical and clinical basis to the funicular syndrome, in contrast to the radicular syndrome of Dejerine (Fig. 1). Following the same lines to a somewhat theoretical conception, Sicard hopes in the future to attain to other topographical differentiations of pain, such as plexitis and ganglionitis—namely, the response to irritation of the limb plexus and of the spinal ganglion.

FIG. 1.



Schematic conception of pathological localisation in the spinal nerves, according to Sicard.

This is not the time to indulge in a critical examination of these new ideas of localisation of pain, but the most important result of these researches is the emergence of a new factor in the causation of neuralgia—that is to say, the vertebral element, or to be more general, the influence of the skeleton. The idea is not new, indeed, that a nerve may be irritated in the canal or foramen which it traverses. Long ago it was recognised that many types of trigeminal neuralgia, facial, suprascapular and Arnold's occipital nerve neuralgia, as well as ulnar and radial, are the result of mechanical irritation of the nerve trunk by the bony foramina, or osteo-periosteal canals. Sicard has re-named these conditions also; he calls them "nevrodocitis" derived from two Greek words: Neuron=nerve; and the verb Dekon=to contain. Nevrodocitis, therefore, indicates nerve pain due to stimulation of the nerve by the bony foramen or canal which contains it. We shall frequently make use of this term, which is descriptive and comprehensive.

VERTEBRAL AND PELVIC FACTORS IN SCIATICA.

As regards the pathology of sciatica, the importance of vertebral and pelvic factors was pointed out some years ago by an American orthopaedic surgeon, Goldthwait, of Boston. Goldthwait was the first to investigate the problem from its anatomical and mechanical aspects, and his work gave inspiration to a series of researches, which have thrown great light upon the matter. He was also the first to draw attention to the frequency of certain congenital anomalies of the spinal column, such as sacralisation of the fifth lumbar vertebra, and variations in the posterior articulations, while he pointed to the possible connexion between these abnormalities and sciatic pain. Goldthwait's views, after they had been defined and extended by other workers, became so popular that in a short time the subject of sacralisation of the fifth lumbar, and its association with sciatica, took a prominent place in medical literature. This was natural enough, for the desire to find an anatomic basis for sciatica and the actual frequency of morphological variations of the fifth lumbar vertebra naturally led to acceptance of Goldthwait's ideas and the recognition of the syndrome, which French authors have recently designated painful sacralisation of the fifth lumbar vertebra. The fifth lumbar vertebra is the foundation-stone of the vertebral column, and it is also much subject to congenital variations, because it is intermediate in position between two segments, the lumbar and the sacral, and has no fixed character. Thus, it is not uncommonly seen to resemble a sacral more than a lumbar vertebra. Its transverse processes may be so wide and deep that they exactly resemble the alae of the sacrum, and in extreme cases it is impossible to distinguish the fifth lumbar from the first sacral. The anomaly may be symmetrical or unilateral.

What connexion is there between the presence of these abnormalities and the development of sciatica? The connexion can easily be divined. In the intervertebral foramen, between the fifth lumbar and the first sacral, runs the fifth root of the lumbo-sacral plexus, a root which is the principal constituent of the sciatic nerve. If the transverse process of the fifth lumbar is wider and deeper, as in these cases of so-called sacralisation, then the lumen of the canal is narrowed and lengthened, and the fifth root may be irritated or compressed as it runs through the canal. Anatomical and radiological studies have demonstrated that sacralisation of the fifth lumbar occurs far more frequently than was formerly recognised. This discovery suggested for a time that the true cause of sciatica had been finally discovered. Some surgeons were induced by this discovery to treat sciatica by removal of the fifth lumbar transverse processes. They expected that, as soon as the process was removed and the canal thereby enlarged, the nerve would have a free course and the pain be cured. But unfortunately results have not always corresponded to their expectations, and criticism has now overturned the elaborate and somewhat theoretical edifice, erected on the base of lumbar sacralisation. It cannot be denied that sacralisation may sometimes be the cause of sciatica, but, on the other hand, the anomaly is frequently found to be present without any associated symptoms, referable to the lumbo-sacral plexus. It must also be borne in mind that the fourth lumbar contributes to the formation of the plexus, and it is often possible to demonstrate that the pain is due to involvement of this root and not of the fifth, which alone could be affected by sacralisation. Finally, if we consider the close relation existing between the development of the vertebral column and of the spinal cord in the embryo, we should expect that with reduction of the intervertebral foramen would be associated a smaller nerve-root, so eliminating the probability of compression. For the above reasons, and others, opinion now is in favour of considering lumbar sacralisation

as one, but by no means the most frequent or severe, of the causes of sciatica.

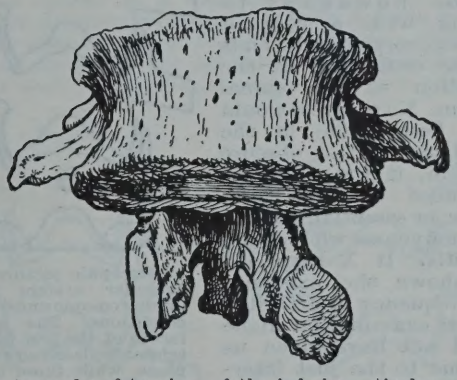
In view of the intimate relation of the roots of the sciatic nerve to the sacro-iliac synchondrosis, it has been stated that peculiarities and diseases of this joint may cause sciatica. This hypothesis lacks anatomical or clinical support; indeed, the recent investigations of Danforth and Wilson seem to exclude it.

ANATOMY OF LUMBAR SPINE IN RELATION TO SCIATICA.

For all this, we must not lose sight of the fact that the study of cases of sciatica shows one constant factor—namely, the association of the pain with anatomical alterations, or functional disturbance of the lumbar spine.

We referred previously to the name rheumatic sciatica, and it is common to find it occurring in individuals with various other rheumatic manifestations, more especially spinal rheumatism. It is common, in taking the history of a case of sciatica, to learn that the attack was preceded by repeated bouts of lumbago—that is, of pain in the lumbar region, which is now recognised as one of the manifestations of rheumatism. Occasionally sciatica comes on suddenly and violently after a quick stooping movement, such as the lifting of a load from the ground. The patient, as he bends, or rises, feels sudden sharp pain in the lumbar spine, which shoots down the course of the sciatic nerve and causes immediate rigidity of the back. This is the usual mechanism of the so-called traumatic lumbago, which results from torsion of the lumbar

FIG. 2.



Anomaly of tropism of the inferior articular facets of a lumbar vertebra.

articulations, and almost always causes sciatica. Cases of Pott's disease, involving the lumbar vertebræ, are often tormented with violent sciatic pain. In them the sciatica is secondary, but its existence demonstrates the close connexion between a vertebral lesion and sciatica.

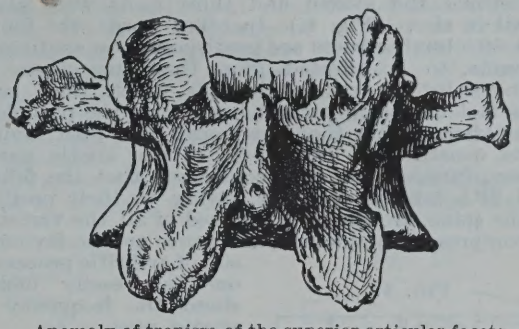
Many neuralgias of the trunk, upper limb, even of the head and face, take origin in some skeletal peculiarity, in fact, are the result of compression, or strain on nerves, or nerve roots, where they traverse bony canals. These are the ones comprised by Sicard under the name "nevrodocitis."

The peripheral nervous system is composed of bundles of nerve-fibres, which in escaping from the spinal canal must traverse a series of bony foramina at the sides of the vertebral column, the so-called intervertebral foramina. Hence the peripheral nerves are liable to be affected by the condition of the vertebral column, and more especially by the intervertebral foramina. In view of the important part these canals play in the pathology of neuralgia, it was desirable to study carefully their anatomical features and their relationship to the nerve roots. Anatomists and clinicians have shared the labour, and thanks to their investigations new light has been thrown on the pathogenesis of peripheral neuralgia.

What is the result of their studies? For the sake of clearness, we will first deal with the results of anatomical research, and later with clinical features. We shall restrict ourselves exclusively to the points which bear on the pathology of sciatica.

In general, the anatomy of the lumbar spine is familiar, but it seems worth while to emphasise

FIG. 3.



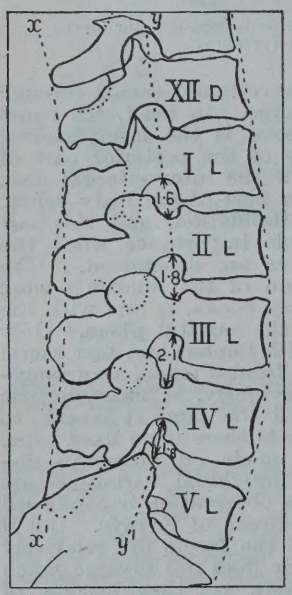
Anomaly of tropism of the superior articular facets of a lumbar vertebra.

the composition of the intervertebral canals through which the nerve roots emerge. In brief, the canal is formed as follows: Above is the intervertebral notch. In front is a little of the posterior part of the body above, a little of the intervertebral disc, and a little of the posterior part of the body below. Behind is the posterior articulation, and this last is a feature of considerable importance when the relations of the nerve roots are considered. The typical posterior articulation of the lumbar region, as it is depicted in anatomy books, is one with the articular facets placed in the sagittal plane. Only in the joint between the fifth lumbar and first sacral are the facets placed in the frontal plane, an arrangement which, as noted previously, is characteristic of the thoracic region. All the same it is safe to say that for the lumbar facets there is no fixed type. An investigation which I made on numerous dissections showed me that individual variations are very common indeed. This observation is confirmed by the study of many hundreds of X rays. But if variations in the angles of the facets are relatively unimportant when the angle does not diverge much from that considered normal, yet they become of great significance when they are of a severe degree of abnormality, and when they are unilateral only, a character by no means uncommon. I called attention to these peculiarities more than fifteen years ago in an article devoted to congenital deformities of the spine. I re-examined this material in my study of the pathology of sciatica and found it not uncommon to have one articulation in the sagittal plane, while its fellow was placed in the frontal plane. This arrangement may be met with in any of the lumbar vertebræ, but is most frequent in the articulations of the fifth lumbar with the first sacral. (Figs. 2 and 3.) We already noted that these joints are normally placed in the frontal plane, but it may happen that while one remains so, the other is exactly sagittal.

These anomalies may have a two-fold effect on the intervertebral foramen; firstly, they may alter its shape and reduce its capacity; secondarily, by altering the mechanics of the spinal column, they may induce a localised arthritis, which itself may irritate the nerve trunk. This effect may also be produced by all the inflammatory processes that have their seat in the vertebral articulations, and we know how frequently this occurs. The diseased joint, by its swelling and deformity, changes the shape and capacity of the foramen, thus irritating and compressing the nerve within it. Hence the neuralgia, or nevrodocitis.

Recent researches have shown that the intervertebral foramina are not all of the same size. The foramen between the fifth lumbar vertebra and the sacrum is always the smallest, that between the fourth and fifth vertebræ the next larger, and that between the fourth and third usually the next, although sometimes the second and third were about equal. Quite contrary to the size of the foramen or canal is the size of the nerve root enclosed. The fifth is always largest, the fourth next to the largest, and the third smaller as a rule, although sometimes the second and third roots were about equal in size. (Fig. 4.) In other words, the fourth and fifth lumbar roots are predisposed, on anatomical grounds, to be affected more than any others by changes in the canals through which they pass. This fact has an important bearing on the pathology of sciatica, seeing that the fourth and fifth lumbar roots constitute a large part of the sciatic nerve. When, furthermore, it is considered that the fourth and fifth lumbar vertebræ, owing to their position in the spine, are the most exposed of all the vertebræ to compression and strain, and hence are the favourite site of arthritic processes, one can easily understand the frequency of sciatic pain.

FIG. 4.



The difference in size of the various intervertebral foramina (from Bonniot).

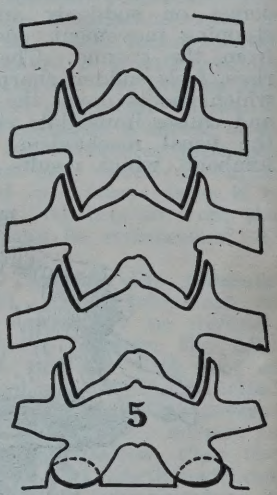
So much for the vertebral canal; but we must also consider its content, the funiculus. The most recent researches on this subject are those of Bonniot and Forestier. The conclusions of these two writers may be summarised as follows: The fourth and fifth lumbar nerves are those possessing the longest funicular portion of all those which constitute the lumbosacral plexus—namely, those with the longest course through intervertebral foramina. The funicular portion of the nerve, unlike the intraspinal portion, does not lie within the arachnoid, but is only clothed by dura mater, and is not bathed in cerebro-spinal fluid. Around the funiculus there is a very rich venous plexus, which is much influenced by mechanical conditions outside the funiculus. The absence of arachnoid, and therefore of a protective layer of fluid, exposes the funiculus to outside mechanical influences, such as do not affect the root, while the surrounding venous plexus puts it at the mercy of any congestion and stasis that may occur in the neighbourhood from many causes.

The intervertebral foramen for all these reasons constitutes a critical region, or as Sicard has happily named it, "carrefour de la douleur"—i.e., the crossroads of neuralgia. Any condition which modifies in the slightest degree the contents, or the container, at once induces a painful reaction, which is referred distally to the sciatic nerve.

Such conditions are discovered by X rays, or by clinical examination. The importance of X ray examination goes without saying, but it is necessary to be clear as to the interpretation to be placed on the X ray evidence. Up till now, many have paid more attention to alterations in the bodies and transverse processes than to modifications of the form and structure of the intervertebral canals. We have already referred to the fate of the so-called syndrome of painful sacralisation. The undue value given for a time to that syndrome distracted attention from phenomena of greater importance. It is undeniable that in certain cases the sciatica is caused by the sacralisation of the fifth lumbar, but the two phenomena are less frequently associated than has been asserted. The same may be said of all the forms of arthritis which affect chiefly the bodies of the vertebræ, and which are evidenced in X rays by bridges of bone uniting, more or less completely, the bodies themselves. This X ray picture corresponds to the well-known group of ankylosing disease, which pass under the name of arthritis deformans, ankylosing spondylitis, Bechterew's and Pierre Marie's diseases. Even in these it is possible that the morbid process, although mainly localised in the body of the vertebra, may influence the intervertebral canal, and thus indirectly irritate the nerve trunk, but it is certain that in the causation of sciatica the changes in the vertebral body are of minor importance compared to those in the articulations.

The abnormalities, deformities, and inflammations of these joints, and the alterations in form of the intervertebral foramen, have not been appreciated at their due value hitherto, because they are not easily recognised on a skiagram. But if one has available first-rate X rays, and above all, if one makes extensive use of stereoscopic X rays, no trained eye will fail to determine the form, size, relations, and structure of the foramina and also the articulations. I lay stress on this point, because nowadays in dealing with a case of sciatica everything depends on the estimation of the condition of the spinal column. No progress would have been made in the elucidation of this obscure problem, if X rays had not convinced us that idiopathic, or essential, sciatica is synonymous with spinal arthritis. If X rays had not shown the existence and frequency of arthritis, clinical examination alone would not have given us the clue to the just interpretation of the facts.

FIG. 5.



Radiographic picture of the articular system in the lumbar column under normal conditions. The articular facets of the first four vertebræ are placed on a sagittal plane, while those between the fifth lumbar and first sacral are in a frontal plane.

But, as I have said, to reveal the anatomical signs of vertebral arthritis, perfect radiograms and experienced examiners are indispensable. In many cases the alterations of the intervertebral articulations are not visible because the radiograms are imperfect, and often also vertebral arthritis is denied because its clinical manifestations have not been appreciated. The intervertebral articulations and foramina are two elements that are generally overlooked in the radiological examination of the spine, the attention of the examiner being commonly attracted to the condition of the bodies, the most conspicuous parts of the vertebræ. Almost always lateral views are neglected and stereoscopic radiograms are little used. It is not possible to judge rightly the conditions and proportions of the canals if lateral radiograms are not taken. And it is impossible to obtain a proper impression of the relations of the articular facets without a stereogram. However, the task is facilitated by the fact that it is the lumbar spine which is affected, the segment that lends itself best to a complete radiological study.

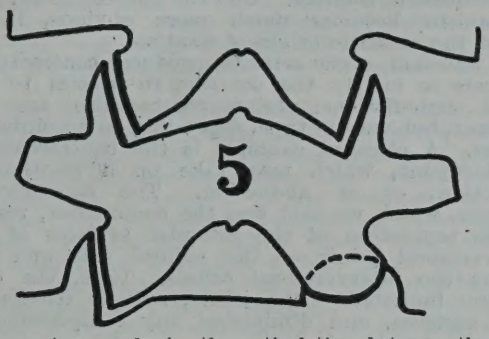
It would be very instructive to demonstrate the anomalies, deformities, and various forms of arthritis, which alter the intervertebral articulations and foramina, but to do so I should need the original

skiagrams, more particularly the stereoscopic ones, for the finer details are lost in lantern-slides.

ALTERATIONS IN INTERVERTEBRAL ARTICULATIONS AND FORAMINA.

I shall limit myself, however, to demonstrating those phenomena which can be found with greater

FIG. 6.

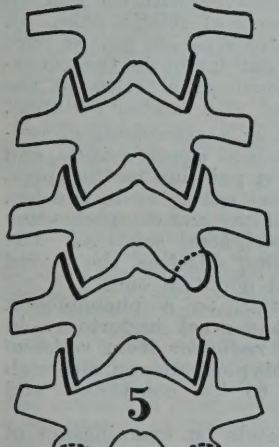


A frequent anomaly in the articulation between the fifth lumbar and first sacral; one articulation is in the frontal plane while the other is in the sagittal. (Anomaly of the articular tropism.)

frequency and ease on radiographic examination, and especially those that have the greatest clinical importance.

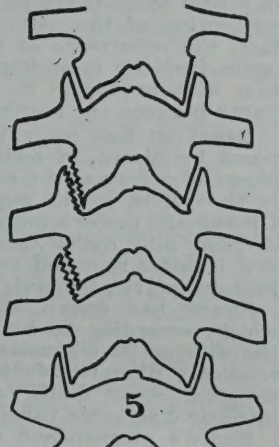
Fig. 5 demonstrates in a diagrammatic way what may be considered the normal radiographic aspect of the articular processes that unite the first four vertebræ, which, as it has been said, have their articular spaces in a sagittal plane. They appear upon the diagram as clear lines with definite borders and in almost perpendicular direction. This line does not appear in the articulation between the fifth lumbar and the sacrum, because it is not normally

FIG. 7.



Another example of anomaly of the articular tropism; the articulation on the right, between the third and fourth lumbar vertebræ, is on a frontal plane.

FIG. 8.



Schematic representation of the radiographic signs in lumbar arthritis (between second and third, third and fourth lumbar vertebræ), left side.

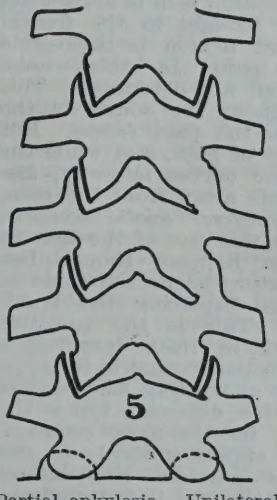
directed on a frontal plane. If the conditions which I have stated above are kept in mind it will not be difficult to discover anomalies or anatomical alterations of the lumbar articulations.

Fig. 6 illustrates an anomaly that frequently appears in the relationship between the fifth lumbar and the sacrum. One articulation preserves the normal position, while the other assumes the radiographic characteristics that belong to the first four lumbar vertebræ. The same anomaly may occur in the articular relations between the other vertebræ. (Fig. 7.) To this condition I have given the name of "anomaly of the articular tropism."

But that which interests us mostly is the proof of the phenomena which follow inflammatory processes of the articulations. They are in reality the same which radiograms demonstrate in every arthritis even though not vertebral. The articular surfaces instead of appearing smooth and parallel appear jagged and rough, as diagrammatically shown in Fig. 8. With perfect radiograms it is possible to determine the structural condition of the articular tissues. It is not infrequent to find a localised ankylosis in one or another of the articulations. This is represented on the radiogram by absence of one or more articular spaces. (See Fig. 9.) The radiographic aspect of a total ankylosis is very characteristic, as the joint space has completely disappeared. (Fig. 10.)

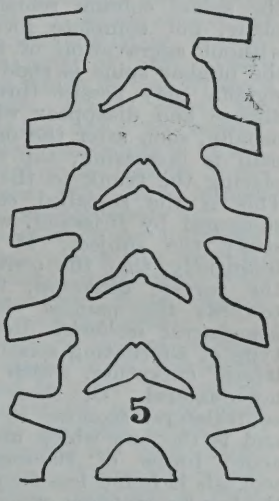
Nowadays the cause of sciatica is to be diagnosed more by a study of the X rays than of the clinical

FIG. 9.



Partial ankylosis. Unilateral (between second and third, third and fourth lumbar vertebræ).

FIG. 10.



Total ankylosis.

symptoms. This does not mean that one is to neglect investigation of the symptoms. Diagnosis, the constant preoccupation of the medical mind, is a conclusion drawn from a study of the facts which knowledge and experience enable us to perceive. The more numerous and objective the facts, the easier and safer the conclusion. But this judgment is born less of the bald assemblage of facts and scholastic classification of them, than of a reasoned analysis of their relation to one another, their logical interdependence. Longfellow has well said:—

> None but a clever dialectician
> Can hope to become a great physician.
> Logic makes an important part
> Of the mystery of the healing art,
> For without it how could you hope to show
> That nobody knows so much as you know?

CLINICAL MANIFESTATIONS OF SCIATICA.

Let us not, therefore, neglect the clinical manifestations of sciatica. Amongst the symptoms is a constant one that may well be called spinal. I mean the *rigidity of the lumbar spine*. Next to pain, this is the dominating feature of idiopathic sciatica. It is well known that there is no clear-cut clinical picture in this disease. Lasègue's sign—namely, the pain caused by expension of the knee with simultaneous flexion of the hip, is neither constant nor characteristic of idiopathic sciatica. Absence of the knee- and ankle-jerks, muscle atrophy, sensory changes, are all phenomena of value in certain cases, but cannot be called pathognomonic.

Even lumbar spasm cannot be correctly called a special symptom, for it exists in every case of irritation of the lumbar spine; nevertheless, it acquires great diagnostic value when it is associated with sciatic pain. It is absent in root sciatica and in all the secondary forms of sciatica. On the contrary, it is always present, or nearly always, in the rheumatic, arthritic type. We have repeated that this type is due to joint disease. Every joint responds to irritation by contractures of the muscles which control its movements. This contracture represents a *defensive reflex*—that is, a reflex designed to protect the joint from pain. The contracture produces this defence by immobilising the joint. The joint is thus fixed in an attitude which may be called protective, an attitude which relieves it of pain. As we said, this attitude has nothing characteristic of vertebral joints or of sciatica. It is found in every painful joint, and each joint has its own special protective attitude. The vertebral column is nothing but a congeries of joints, and as such it protects itself from pain by assuming characteristic attitudes. Scoliosis is the protective contracture of the vertebral articulations.

In the early stages, when sciatic pain is not severe, the spinal column remains straight in the frontal plane, but complete forward flexion is impossible without aggravation of the pain. In other words, the lumbar spine is rigid, but not deformed. This rigidity may persist throughout the course of the disease and disappear when the pain ceases. But usually, soon after the onset of pain, and while the pain is increasing, the spine curves laterally, displacing the trunk to the side away from the pain. This is the so-called *contralateral sciatic scoliosis*, so-named by Brissaud, who was one of the first to study the subject. It can happen, though less frequently, that the contracture bends the spine in the reverse direction, thus displacing the trunk towards the painful side. This is the so-called *homolateral scoliosis*. Remak, in 1890, described a type of alternating sciatic scoliosis—that is to say, a lateral curvature, which is alternately contra- and nomo-lateral. Of these three different types the contralateral scoliosis is by far the most common, and is the one which may appear suddenly in the acute forms of rheumatic sciatica. Homolateral scoliosis is found less frequently, and then usually in the less severe types of sciatica, and those which have a gradual onset. The alternating type is the rarest of the three. It begins as contralateral scoliosis and, in time, develops into the alternating form.

But why should these vertebral contractures and deformities be so diverse. Why in apparently identical cases, identical alike in duration and severity, should one show a contralateral scoliosis, another homolateral, and a third alternating? This is a clinical problem that appeared very difficult to solve. Its investigation is important, not only on theoretical, but also, and more particularly on practical grounds, because these deformities may be extremely severe in type, long in duration, and even persistent after the pain has disappeared. Hypotheses have been brought forward by men of authority such as Charcot, Gussenbauer, Hoffa, and Lorenz. But the explanations have seldom seemed convincing. To-day, thanks to the studies to which we have already referred, a new light has been thrown on the subject.

One thing is beyond dispute: that scoliosis, of whatever type, is due to *muscular contracture*, which is itself a reflex, induced by the pain with the object of diminishing the pain. Ask the patient and examine him, and you will soon be convinced of this fact. Try to correct and overcome the scoliosis, and you will find the patient protest, because the pain immediately becomes unbearable. If you ask the patient, he will tell you that the curvature came on spontaneously, and that he does not try to correct it, because that increases his pain. Thus the contracture and scoliosis have as their purpose the diminution of pain. How is this achieved? By what mechanism can these various contractures reduce pain? The commonly accepted explanation is that the attitude of the trunk, together with abduction and flexion of the affected limb, produces a relaxation of the sciatic nerve, and thus relieves the pain. But this hypothesis does not explain all the facts. Were this true, the scoliosis should be always of the same type, and all forms of sciatica should produce it, whereas we know it is characteristic of rheumatic sciatica. On the other hand, the mechanism becomes much more obvious, if we accept the arthritic origin of sciatica.

As was said, every arthritis produces contractures. Scoliosis is merely the contracture special to the spinal articulations. Joint contractures are not constant, but vary in type, depending on a number of factors. A classical example is the contracture of the hip-joint, which may take up a position of adduction, or of abduction. The contralateral scoliosis, which we said was the commonest, results in the separation of the articular surfaces of the intervertebral joints on the painful side and also widens the intervertebral canals. Thus, the contracture immobilises the joints, reduces friction of their surfaces, and diminishes any compression of the nerve-trunks.

Homolateral scoliosis relaxes the joints and makes the nerve cords relax on the painful side. In all the cases of alternating scoliosis that we have been able to examine by X rays, we have found a bilateral arthritis of the joints between the fifth lumbar and the sacrum. We therefore think that the scoliosis is alternating because the arthritis is bilateral. The change of attitude is the result of the need felt by the patient to rest the joints first of one side and then the other. In short, this is the explanation we give of that most important symptom of idiopathic sciatica, the scoliosis. Thus considered, the scoliosis no longer represents an isolated phenomenon, but a manifestation logically to be expected, with numerous analogies and an anatomic basis. Indeed, the vertebral arthritis, the essential cause of the scoliosis, is no abstract conception but a fact demonstrated by X rays. This conception of the mechanism of sciatic scoliosis agrees, moreover, with the modern conception of the pathogenesis of sciatic pain. In fact, the occurrence of sciatic scoliosis proves once again that the most important factor in the causation of neurodocitis is a localised arthritis of the joints between the fourth and fifth lumbar vertebræ.

Based on this conception is a classification, proposed by Sicard, of sciatica into *upper*, *middle*, and *lower*, according as the seat of pain lies in the spine, in the pelvis, in the popliteal space, or in the leg. I personally prefer a more definite and comprehensive division into *central* and *peripheral* sciatica. The first includes root and vertebral sciaticas, the second includes pelvic, femoral, and popliteal ones.

Sicard has drawn attention to a phenomenon which, according to him, has great importance in the differential diagnosis of *radicular* from *vertebral* sciatica. We must refer to this phenomenon, although we feel some doubt as to its constancy and intrinsic diagnostic value.

Sicard's phenomenon depends on examination of the cerebro-spinal fluid. In *root sciatica* there is said to be a lymphocytosis; in *funiculitis* an increase in the albumin content, without lymphocytosis, a state of the fluid which Sicard and Foix have called cell-albumin dissociation.

The increase of albumin, which is supposed to be peculiar to funiculitis, is due, according to Sicard, to the obstruction to the venous circulation by inflammation and compression in the canal. The control experiments which we have carried out on numerous patients have not led us to any definite conclusion in the matter. Beyond the symptoms to which we have referred, idiopathic sciatica shows others of an eminently neurological character. But their diagnostic importance is relative. Naturally an inflammatory reaction in a mixed nerve like the sciatic induces, besides pain, symptoms of trophic,

sensory, motor, reflex, and sympathetic nature. Often there is general reduction of the muscles of the whole limb, more particularly of the thigh and leg. In some severe cases one finds paresis or paralysis of the external popliteal, but tests have never shown the electrical reactions of degeneration. More important is the condition of the reflexes. The ankle-jerk is the one most often affected. Frequently it is abolished, nor is it rare to find it diminished. We have seen cases in which, many years after the disappearance of every symptom of sciatica, the ankle-jerk was still absent. The knee-jerk also varies, and its disappearance is by no means rare.

THE SCIENTIFIC TREATMENT OF SCIATICA.

This seems to me the moment to answer a question which I imagine some of you are longing to put to me: What influence have these new conceptions of the pathology of sciatica on the treatment of the pain itself? If a treatment initiated on pathological grounds produces the desired effect, that fact of itself constitutes the most certain proof that the cause of the disease has been correctly ascertained. The results which I have obtained in a large number of cases of idiopathic sciatica by applying treatment based on the conviction that it is the consequence of spinal arthritis, demonstrate, in my opinion, that my conviction is correct.

It is unnecessary to enumerate the therapeutic measures which have been applied in sciatica. These measures were almost exclusively symptomatic. The cause being unknown, an attempt was made to treat the results, and efforts were made to overcome the pain with all measures, chemical, physical, mechanical, and surgical, at the disposal of the profession.

Once convinced that idiopathic sciatica takes origin in spinal arthritis, we followed out in its treatment the two fundamental principles of treatment for any non-specific arthritis—namely, *active hyperæmia* and *immobilisation*. Active hyperæmia, obtained by the action of heat on the part, causes vasodilatation in the neighbourhood of the joint and hence an active interchange of fluids, which by self-immunisation has a curative effect on the arthritis. Immobilisation rests the joints and relieves it from mechanical irritation.

The technique of this treatment is briefly as follows:—

In the acute stage the patient is rigorously confined to bed. When the diagnosis has been confirmed, active hyperæmia is begun, which consists in a daily hot-air bath. The bath is given by one of the numerous forms of apparatus that have been designed for this purpose. We greatly prefer Bier's apparatus, which consists of a wooden box, adapted to contain the part of the body which it is desired to expose to the action of heat. Into this box is driven a current of hot air produced by a spirit lamp. With Bier's apparatus it is easy to attain the maximum temperature which the body will stand. If the general condition of the patient allows, the bath will be given daily for 30 to 40 minutes. In the first few days the temperature will rise to about 90° C., later to a maximum of 120° to 125°. The hot bath will be followed by general massage. In the great majority of cases one finds, after the first few baths, an aggravation of the pain, quickly followed by decisive improvement.

The moment the patient is fit to stand for a time without pain the second stage of treatment is initiated—namely, immobilisation. This is obtained by means of a plaster jacket. I cannot stop to describe the technique of the making of this jacket. A few general rules must suffice:—

1. The jacket must give fixation to the pelvis and trunk, except the shoulders.

2. It must only immobilise, not attempt to correct. Even if severe scoliosis is present it must not be interfered with.

3. The jacket must never be left on any longer than is necessary for the setting of the plaster, which is about 30 minutes.

Allow me to lay stress on the point that the jacket must immobilise and not attempt to correct. Its only purpose is to rest the inflamed joints. We said before that the spinal contracture represents the patient's own method of reducing pain. To correct the contracture is to exacerbate the pain. The contracture must disappear spontaneously as the result of immobilisation. Experience has shown that leaving the corset on causes within 24 hours a very severe spasm of pain. The sciatica case cannot endure any compulsory position for more than a few moments. Pain compels him to change the position of his spine every few minutes. For this reason the corset must be removed as soon as it is finished. It is to be worn daily for increasing periods, until the patient is used to it. This will be within a few days. Usually by the end of a week the patient is able to tolerate the corset continuously. Meanwhile the hyperæmia treatment is continued. This treatment is usually completed in 18 to 20 baths. On the contrary, it is impossible to fix the end of the immobilisation period. Usually, after two or three months, the plaster jacket can be replaced by a celluloid corset. In mild cases of spinal sciatica immobilisation will be continued for not less than six months; in more serious cases the jacket may need to be worn for more than a year.

This is not the time to dwell at length on statistics of the results of this treatment. Long experience has shown me that it rests on a good foundation, because the results are good in the majority of cases. There are, indeed, very severe cases which do not improve with conservative treatment. Some years ago Sicard advised resort in these cases to surgical measures—that is, laminectomy. According to Sicard, laminectomy—namely, removal of the laminæ of the fifth, fourth, and sometimes the third lumbar vertebræ—would result in decompression of the funiculi. In some cases operated on by Robineau, Sicard observed that the dura mater was irregular with scar tissue, which he thought might have some bearing on the causation of sciatica. Sicard regards the results of laminectomy as most favourable.

I have only encountered a single case of arthritic sciatica which resisted all conservative treatment, and in which I felt compelled to resort to surgery. The case was that of a man of 52, who for more than 30 years suffered from periodic attacks of sciatica, and who for some months has been unable to assume the upright position. There was severe lumbar contracture, which had produced a rigid, contralateral scoliosis. The X ray showed advanced pathological changes in the bodies and articulations of the fourth and fifth lumbar vertebræ. In this case I did not limit myself to carrying out a laminectomy, because it seemed to me an operation insufficient to relieve compression of the funiculi. The vertebral laminæ take no part in the formation of the intervertebral foramina. In order to decompress the funiculi it is necessary to open the bony canal, which can only be done by resecting the posterior articulations, which is what I did in my case. After removing the laminæ of the fifth, fourth, and third lumbar vertebræ, I resected the posterior articulations which unite the fourth to the fifth lumbar, and it to the sacrum. Thus I succeeded in completely exposing the fourth and fifth lumbar nerves on both sides. I did not see any macroscopic changes in the meninges, in the roots, or in the funiculi. Complete success resulted. In a few days the patient was free from all pain; at the end of a month he could get up and walk without difficulty in a plaster jacket. The improvement is maintained more than three years after the operation. This result shows that even for the most severe cases of sciatica there exists a cure, and it also demonstrates once again that the explanation of the pathology of sciatica which has been put forward in this lecture is a rational one.

CONCLUSIONS.

Sciatic pain is symptomatic of vertebral arthritis excepting in those rare cases in which it is a symptom of a neuritis of specific nature. Sciatica is a neuralgia caused by pathological conditions of the intervertebral

foramina and especially of the intervertebral articulations. In other words, sciatica is a symptom of neurodocitis and lumbarthritis.

The terms rheumatic sciatica and idiopathic sciatica should be substituted by the more precise and adequate one of *arthritic* or *vertebral sciatica.*

To treat the sciatica it is necessary to treat the arthritis.

The treatment of vertebral arthritis is based upon the same principles as the treatment of all other arthritis of non-specific origin, therefore active hyperæmia and immobilisation. When these two methods are inefficacious it will be necessary to resort to a resection of the diseased articulations.

An Address
ON
VISCEROPTOSIS.

A Contribution to the Discussion at the Meeting of the Association of Surgeons at Glasgow on May 5th, 1927.

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(*Concluded from p. 4.*)

SYMPTOMS.

THE clinical importance of cases of visceroptosis lies in the fact that their symptoms so closely resemble those of localised organic lesions, the treatment of which is almost wholly surgical. It is the one condition which causes difficulty in the diagnosis of abdominal disease. As a general rule, the mimicry is incomplete, and it is not a difficult matter to say that a patient is suffering from ptosis, but it is often extremely difficult to determine whether there is in addition some organic lesion. In the earlier stages the symptoms are frequently localised to one viscus, so that it is convenient to consider them under the heading of the lesions which they simulate. Later in life, or in the more advanced cases, the changes become more widespread and the symptoms correspondingly generalised. The actual symptoms of the individual groups have been so frequently discussed that it is unnecessary to consider them again in detail. The points of distinction upon which stress must be laid are that the condition is much more common in women, and that in them there will have been the onset of abdominal symptoms soon after puberty, and while they are yet at school. From this time the patient is rarely free from trouble, the characteristic periodicity of a chronic gastric or duodenal ulcer being absent; as she often expresses it, she "has always suffered from a delicate stomach and has had to take great care in her diet and life." The more acute attacks will usually only persist for a few days, but the intervals of comparative freedom will also be short. There will thus often have been a history of many years duration during which time symptoms have progressed little, if at all, and this will at once give a clue to the nature of the pathological lesion, for had there been any organic disease of the stomach, gall-bladder or appendix, it is certain that the organic condition would have progressed and the symptoms would have become correspondingly more severe. The pain will differ in its site and characters according to whether the symptoms resemble more closely a lesion of the stomach, gall-bladder, appendix, or kidney, but in general it consists of a dull, aching pain which is widely spread over the abdomen, in the gastric cases may be worse immediately after food, is of a dragging, heavy character, is increased when the patient is tired or worried, and is considerably relieved by lying down. In addition there are often attacks of more severe and almost colicky pain which are probably due to kinking of the stomach or large intestine. In the case of a mobile kidney the kinking of the ureter may cause colicky attacks very similar to those of a calculus.

Vomiting is a frequent symptom, and in the gastric cases is much more common and severe than is usually found with an organic lesion, probably owing to a gastritis secondary to the atony and prolapse. The vomiting does not completely relieve the pain, although it occurs at the height of the pain after each meal. In the gastric type of case, hæmatemesis is very frequent and is often severe, again because there is a secondary gastritis with the presence of erosions. The appetite is poor for the same reason, and in nearly every case the patient is constipated. In a certain group of cases there is irritation of, rather than stagnation in, the colon with the presence of colic and diarrhœa. Many cases of mucous colitis have, in fact, advanced general ptosis. Uterine prolapse is commonly present. On examination these patients are always tall, thin, energetic, and often, indeed, irritable people showing all the body characters of virginal ptosis. The constriction of the upper abdomen both laterally and anteroposteriorly is usually very evident. Dilatation of the stomach and cæcum is made evident by splashing and gurgling on palpation, and if the abdominal wall is very weak peristalsis may even be visible, but is never so strong and forcible as with a mechanical obstruction. The right kidney is generally mobile. Hyperæsthesia corresponding either to the stomach or cæcal areas is very common, and since such a condition is rarely if ever found with a chronic gastric ulcer, this sign is often a useful point in the differential diagnosis. Deep tenderness, if present at all, will be found over the whole area of the viscus —e.g., the stomach—and is not localised to a small mid-epigastric area as with a chronic gastric ulcer. In the variety appearing in middle-aged men there will, of course, not be the characteristic body changes, and often the only physical signs which are found are the presence of hyperæsthesia in the gastric area and a diffuse rather than a localised deep tenderness.

The test-meal may be very confusing, for not uncommonly these patients have a high degree of acidity. The highest free acid which I have ever seen was 0·35 per cent., and was found in a patient who had only visceroptosis. This fact should always be kept in mind, for if the symptoms resemble a pyloric ulcer the presence of such a high acidity may seem to confirm the diagnosis. In the more acute cases in young women the acidity tends to be low, and in the atonic type found in middle-aged men the absence of free HCl is very common owing to the presence of gastritis, thus increasing the difficulty in the distinction of this type from carcinoma of the stomach.

X ray examination is of very great value. On the screen it will be found not only that the stomach and colon are much lower than normal, but in nearly every case the ptosis is associated with atony, and hence there is a very marked difference in the position of the viscera when the patient is erect or lying down. The stomach, the cæcum, and often portions of the colon, are exceptionally dilated, and there is very considerable delay in the passage of the opaque meal. Kinking and delay in the passage owing to the accessory bands and adhesions is, as Jordan has demonstrated, often evident. Local areas of spasm maintained for a relatively long time, are not uncommon in both stomach and colon, the latter being most often seen in the acquired varieties at or about middle age (Fig. 3). Of equal value with the positive findings is the absence of any indication of the organic disease which is so closely simulated by the symptoms. In the difficult cases in women, for instance, there is no evidence of a penetrating ulcer of the lesser curve or of a duodenal ulcer, and in many cases the appendix is found to fill normally, so that the diagnosis of chronic appendicitis is unlikely. It must, of course, be remembered that ptosis in itself may in people with a good postural tone give rise to no symptoms, and therefore its mere presence, as demonstrated by X ray investigation, does not exclude the possibility

of some other disease. Especially must this be remembered when the symptoms are those of chronic cholelithasis or chronic cholecystitis, and it may be necessary with the clinical picture of this disease to carry out a special investigation after the administration of tetraiodophenolphthalein. It is in the acquired cases in men where the symptoms are those of early carcinoma of the stomach that difficulty may specially arise, for in such early cases the X ray evidence may be very doubtful, and this is also true with the small posterior chronic ulcers. Hence, even with the most careful investigation, it is not always possible to avoid operating for a supposed ulcer or early carcinoma, only to find that the symptoms are due to ptosis.

TREATMENT.

There is no condition in surgery which has led to so many fallacious and useless operations—fallacious because the operation has been so frequently carried out in the belief that some organic lesion is present, and useless because only too frequently attention has been directed wholly to one of the many pathological changes, and a form of treatment has been lauded and widely carried out in the belief that the overcoming of that one pathological change would lead to a complete cure of all symptoms. A wider appreciation of the fact that the symptoms are due to a combination of a congenital error with an acquired loss of postural muscular tone, will make it evident that attention must at first be wholly directed to medical methods of overcoming the acquired disability. As far as I am aware, practically no case can be said to have died directly from the effects of ptosis alone. It has been frequently held out as an indication for operation that virginal ptosis is the direct cause of many organic lesions, and it has been my aim to show that my own experience does not support this view. It is becoming to me, at any rate, more and more evident that ptosis is not the cause of gastric ulcer, of gall-stones, or carcinoma, or of chronic appendicitis, although in rare cases it may be complicated with any of these conditions. As far as my own experience goes in a follow-up department which has been in existence for a period of eight years, there is a tendency for the symptoms of virginal ptosis to die out as the patient gets older, but my experience as yet is insufficient to be dogmatic on this point. I think the majority of surgeons with wide abdominal experience will agree that it is very seldom necessary to have to give treatment to unoperated cases of virginal ptosis in patients of over 60, nor—if one excludes the cases of Hirschsprung's disease and volvulus, which should very doubtfully be included with ptosis—is there any indication that these patients die as a direct cause of their disease. On the other hand, we have all of us had only too wide an experience of the miserable subjects of extensive forms of operation. There is perhaps no condition which is so distressing to a patient as the severe abdominal symptoms and upset in the progress of their life as the after-results of unsatisfactory forms of treatment, such as is seen after wide fixation, lateral anastomosis, or resections of the colon, and it must always be remembered that these operations, however carefully performed, not only carry with them a direct immediate mortality, but there is a secondary mortality after they have been initiated. It may therefore be said that in no case of visceroptosis should operative treatment ever be considered until medical measures have been thoroughly and conscientiously carried out. Unfortunately, in but few of these patients is it possible to carry out the ideal treatment. If we could remove them from the disabilities of their work and could transplant them, while still young, to a healthy country life and air with congenial outdoor work, or if we could order the poorer and overworked patients a prescription of £500 a year, a cure would probably soon follow. These people are unsuited to the strain of civilised life, but the difficulty is that few, if any, of them are able to be removed from their surroundings. Attempts must therefore be made to improve their symptoms by medical measures which aim at improving their diet, at overcoming their abnormal bowel action, at increasing their postural tone, and at improving their mental outlook on life. By such means a very great deal can be accomplished, although as long as they continue under the influences which have produced their symptoms their abdomens will always be their weak points, and therefore they can rarely be regarded as completely cured.

Limitations of space will prevent a detailed consideration of the various surgical measures which have been advocated, but it is important to consider the indications for operative interference. Even with the greatest care in making a diagnosis we shall still, for a time, operate upon some patients in the belief that an organic lesion is present. Apart, however, from these accidental cases, the indications for operation are:—

1. The patient must have had a careful and complete course of medical treatment. Not only must this have failed to give relief, but the patient must feel that under her conditions life is intolerable, and that she would be willing to change a condition of discomfort which carried no risk of life for a surgical adventure which may succeed in giving her relief, but at the same time does give a definite small percentage of vital risk.

2. Operation should only be performed if the symptoms are definitely localised to one viscus. If they are widely spread over the whole abdominal contents, no operative measure is likely to give any lasting relief. On the other hand, we are all conversant with cases where the symptoms are localised to one organ where an almost complete symptomatic cure can be brought about by operative interference. For instance, a patient who has a mobile kidney with kinking of the ureter can usually be cured by a well-performed nephropexy, and in the same way operations directed to the stomach or cæcum may give a great deal of relief. As regards the actual operative technique, any operation upon one viscus should first of all aim at the complete and free division of all the accessory membranes and bands, but it must be remembered that such bands rarely if ever cause mechanical obstruction, although the gut appears to be tied down by a Lane's kink or a Jackson's membrane. It is very seldom indeed that one ever meets with a definite hypertrophy of the gut proximal to such a band, and it is this fact which must ever be kept in mind, for it is the belief that such a mechanical obstruction exists which has led to the wide introduction of operative treatment, and especially to the use of lateral anastomosis and partial or complete resection. Nevertheless, the kinking of such bands may possibly give rise to spasmodic contractions, and hence they should be freely divided before any form of fixation is carried out. Some of my cases have been very greatly relieved by gastrocolopexy. This operation I have carried out in 31 instances only, for it has only been performed in those cases where medical treatment has failed, and where the symptoms have been localised entirely to the stomach. Under such conditions the relief is often very considerable, but even then it must be combined with careful after-medical treatment. Of the various methods which have been introduced, I much prefer the Coffey operation as not only giving a firmer and wider fixation but as interfering less than any of the other operations with the normal action of the stomach. Cæcopexy, in a similar way, is an operation of limited application. I have only performed it eight times in my series, and since these cases have been most carefully selected a considerable relief has followed. The wide introduction of the Wilms operation or its modification as advocated by Waugh is, however, likely to lead to disastrous results. There is not the slightest evidence that the whole series of changes and symptoms is dependent upon any primary change in the cæcum, and I have only too frequently met with cases where this operation has been inadvisedly performed and has led to

no relief, but rather to an exacerbation of the symptoms.

In the use of lateral anastomosis the same care has to be exercised. It is remarkable in reading the literature on the performance of duodeno-jejunostomy for duodenal ileus to observe what very great difference of opinion there is as to its value, and I cannot help but feel that it has been performed in many cases where it is unnecessary. In my own series there have only been five cases of very definite duodenal ileus where this operation has been performed. In two of them practically a complete cure of all symptoms has followed, although the patients have still shown all the characters of virginal ptosis. In the other three, relief has been less complete, and medical measures still have to be carried out. For the dilated and atonic stomach, the use of gastro-enterostomy has been generally found to be so unsatisfactory that it may be said to have been abandoned, and I think there are very few surgeons to-day who will advocate its use. Even for the dilated and atonic colon these operations of lateral or end-to-side anastomosis are beginning to fall into disuse. So many cases have been reported, and even more have been known, where the condition of the patient has only been made worse, that it has not been widely adopted. Only too often the loop or excluded portion of the intestine continues to fill up by a retrograde passage of the contents, so that the patient's life is made more miserable, and indeed not infrequently subsequent operations have to be performed simply to overcome the added disability of the lateral anastomosis. In a few cases where the atony and dilatation is limited to the cæcum some relief may be obtained by these measures, and especially if they are combined with cæcostomy or appendicostomy, but such cases are relatively few.

Resection of gut also has a much narrower scope than was at one time believed. If the evidence could be accepted that the primary change was in the large intestine, and that the alterations in the small intestine and stomach only followed a prolonged dilatation and stasis in this part of the gut, it would be very tempting to remove a portion or the whole of the large intestine in the hope of bringing about a complete cure, and it was on such an assumption that Lane's operation became at one time extremely popular, but in the experience of most surgeons the results have not come up to our expectations. In the hands of the majority of surgeons the operation can certainly not be described as one of only moderate severity, but is one carrying with it a very high mortality. Nor do the after-results give complete satisfaction; in only too many cases the small intestine becomes atonic and dilated, and the patients complain of symptoms often more marked than those before the resection. Either frequent diarrhœa or a steadily progressive intestinal obstruction, sometimes of a mechanical nature, are by no means uncommon complications. Partial colectomies, either with removal of the cæcum or ascending colon in long-standing cases, sometimes give considerable relief, but here, again, the operation not only carries with it an immediate danger to life, but there is a risk of subsequent obstruction by adhesions and the recurrence of the original symptoms by spread of the atonic condition to the remaining portion of the large gut. As with the other forms of operative treatment, a partial colectomy therefore should be reserved for these cases in which the symptoms and pathological changes are almost wholly limited to a small portion of the intestine. It has been of some interest to me in analysing my own cases to find that the greater number of those in whom I have had to perform anastomoses or partial and complete colectomies have been patients who have already had a large number of previous operations elsewhere, so that interference of this sort has in part, at any rate, been necessary to overcome the effects of operative treatment as much as for the original disease.

The fact that the pain is spasmodic in character is suggestive that it may be due to overaction of the sympathetic nerves. The satisfactory results obtained by Hunter and Royle in division of the sympathetic to overcome spastic diaplegia, by Leriche and Benisty in the treatment of Raynaud's disease, and other spasmodic conditions of the artery by division of the sympathetic supply, and by the use of Jonesco's method of removing the stellate ganglion or other portions of the cervical sympathetic in the treatment of angina pectoris, has often led me to think that relief might be obtained by the introduction of similar methods in the treatment of visceroptotic pain. Such methods would, however, be surrounded by considerable difficulty. Anatomically, it would not be a matter of great difficulty to expose the sympathetic cords in the upper abdomen, but the supply is so wide that one would have the choice of division of the three splanchnic nerves and the sympathetic cord on either side, giving eight alternative paths, and one cannot help but feel that if the pain is due to sympathetic overaction relief should lie in the future, not in the cutting off of the afferent and efferent impulses along the sympathetics by surgical treatment, nor by controlling these impulses with medical treatment and drugs, but rather by the wider introduction of a healthier open-air life. These patients should, in fact, make use of the prescription given us some time ago by Kipling: "They should dig till they gently perspire."

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MANCHESTER INSURANCE COMMITTEE: OPENING OF NEW OFFICES.—In connexion with the formal opening of the new offices of the Manchester Insurance Committee at Ardwick on June 28th, Mr. L. C. Brock, Principal Assistant Secretary to the Ministry of Health, said they had succeeded in securing the smooth working of a medical service which now embraced 13,000 doctors, a full third of the population, and covered the whole country. The medical service had been steadily improving, but there was one feature which gave ground for uneasiness—the steady and continuous increase in the expenditure on and in the consumption of drugs and medicines. This applied particularly to Manchester. During the last year the insured population of England and Wales got on with rather less than 4½ prescriptions per head; but in Manchester they were 6·60 and in Salford 6·84, so that Manchester received 50 per cent. more prescriptions than the average of the country as a whole. Each Manchester prescription cost a little more than 9*d*. This was indicative of a wrong attitude of mind on the part of the insured population. Moreover, the consumption of dutiable medicines had increased, and it looked as if we were on the way to becoming a nation of medicine drunkards.

The Manchester Insurance Committee is responsible for the adequate medical benefit of more than 330,000 insured persons. During the last year over £140,000 was disbursed by the committee for medical treatment, comprising about 2,000,000 services and upwards of £77,000 for medicines and appliances. In the 15 years of medical benefit up to last December the total expended in Manchester on treatment was nearly £1,700,000, and on medicine and appliances £582,000.

LACTIC ACID MILK AS A ROUTINE INFANT FOOD.

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LACTIC acid milk has for several years been extensively used by pediatricians in America as an artificial food for infants. It has not, however, received much attention in this country. Its most prominent advocate is W. M. Marriott, of St. Louis, whose work one of us (E. R. Walker) had the opportunity of seeing three years ago. The results seemed so satisfactory, and compared so favourably with those obtained by other methods of feeding, that we determined to give it a thorough trial. This paper is based on a study of 50 infants so fed at the Burnside Infant Welfare Home, Aberdeen.

Marriott and Davidson [1] analysed the records of all infants under 1 year of age in the St. Louis Children's Hospital for a period of two years, during which whole lactic acid milk was used as a routine feeding. Infants suffering from proved tuberculous meningitis and septicæmia were excluded, but no other selection was made. From the remaining 142 records the following results were obtained. The average period of feeding was 22 days, and the average gain 0·9 oz. Commenting on this, the authors say: "This satisfactory nutritional result in a group of sick infants under hospital conditions has served to confirm our original impression of the value of the food of type described." They state that the infants rarely developed diarrhœa or vomiting, whilst the mortality amongst athreptic (marasmic) infants fell from 78 per cent. four years earlier to 26 per cent.

Rationale of "Buffer" Action of Milk.

The acid-binding or "buffer" value of sweet cow's milk is three times that of human milk, and it is this characteristic which chiefly renders cow's milk difficult of digestion by the infant. Marriott and Davidson [2] have shown that in infants fed on whole cow's milk the H-ion concentration of the gastric contents is greatly lowered. The deleterious effects of the lowered gastric acidity thus produced are of importance. The bactericidal properties of the gastric contents are distinctly reduced, and the alterations in digestive processes are numerous. Peptic digestion is seldom possible at the concentrations reached, which in Marriott's cases averaged pH 5·1, peptic digestion beginning at pH 4 and being optimum at pH 2·5. The importance of peptic digestion is not completely understood, but it is believed that the peptone so formed has a stimulating effect on the flow of bile and pancreatic secretion.[2] Of greater importance, however, is the denaturation of protein by rennin coagulation. The latter occurs at a pH about 5·5, and any lesser acidity than this favours the passage of unchanged protein through the pylorus. This is of particular moment in athreptic infants and in normal infants of less than two weeks old, in whom it has been shown that unchanged protein can pass through the intestinal wall into the general circulation.[3] It is conceivable that this process may be sometimes of ætiological importance in the rare cases of idiosyncrasy to cow's milk. Many infants, of course, by acquiring greater powers of gastric secretion overcome these difficulties and apparently thrive on whole milk. It is difficult not to feel uneasy about the possible after-effects of this over-secretion, and Pritchard [4] has recently recorded his misgivings on that score. Sweet whole milk, however, is not often advocated nowadays.

Dilution of Cow's Milk.

Dilution of cow's milk will get over these faults, but is unfortunately attended by defects of its own. Clinically it has been recognised as desirable to lessen the degree of dilution as soon as this may be successfully accomplished without digestive upset in the infant. The explanation of the shortcomings of high dilutions is to be sought in the nature of the proteins of the two milks. Of the two principal proteins—lactalbumin and caseinogen—lactalbumin much more closely resembles the body proteins in the composition than does caseinogen, and 54 per cent. of the protein of human milk is lactalbumin as against only 14 per cent. in cow's milk. Cow's milk is, therefore, for the purpose of feeding human infants, relatively deficient in essential amino-acids, notably tryptophane, and much more of its proteins must be fed if the full complement of "building-stones" is to be provided. Since the total protein of cow's milk is three times that of human, feeding whole milk will meet the requirements.

Lactic Acid Milk.

From these considerations it appears that some other method than dilution should be attempted in order to render cow's milk suitable to the infant digestion. To this end acid can be added to whole milk in amounts calculated to overcome the excess of "buffers" and so maintain in the infant's stomach an H-ion concentration similar to that occurring in natural feeding. Hydrochloric acid, vinegar (acetic acid), lemon juice, and lactic acid have all been used. Hess [5] has recently advocated orange juice for this purpose. It has apparently a favourable effect on protein solubility. Hydrochloric acid would seem to be the most logical one to choose, and has been strongly championed by some workers, notably Faber.[4] It has, however, certain disadvantages. It is an inorganic acid, and therefore tends to lower the body alkali reserve when given in amounts large enough to exert its anti-buffer action in the stomach. Also, according to Wills, Sanderson, and Paterson,[7] it seriously lessens the retention of calcium. Lactic acid is an organic acid occurring naturally in the metabolism of muscle and other cells, and is completely oxidised in the tissues. It has also the advantage that at the concentration necessary to produce its anti-buffer effects lactic-acid forming organisms alone can flourish, whilst pathogenic organisms are destroyed or at least inhibited (see table).

Table showing Effect of Lactic Acid on the Bacterial Count of Milk.

Sample No. 1.

	Count per c.cm.	*B. coli* present in—
(*a*) Lactic acid portion.		
1st pl. 2 hrs. after L.A.	800,000	0·01 c.cm.
2nd pl. 24 hrs. after L.A.	128,000	0·01 „
3rd pl. 48 hrs. after L.A.	170,000	0·01 „
(*b*) Control portion.		
1st pl.	2,000,000	0·01 „
2nd „	6,400,000	0·01 „
3rd „	7,400,000	0·01 „

Sample No. 2.

(*a*) Lactic acid portion.		
1st pl. 2 hrs. after L.A.	6,000	0·1 „
2nd pl. 24 hrs. after L.A.	1,300	0·1 „
3rd pl. 48 hrs. after L.A.	900	0·1 „
(*b*) Control portion.		
1st pl.	17,000	0·01 „
2nd „	19,000	0·01 „
3rd „	27,000	0·01 „

pl. = plating. L.A. = addition of lactic acid.

These counts were made by Dr. Smith, bacteriologist to the City Hospital, Aberdeen, to whom our thanks are due.

Naturally, soured milk—i.e., by inoculation with *B. acidophilus* or other lactic acid producer—is probably the best form for infant feeding, but a quite satisfactory form can be prepared by the addition of pharmacopœial lactic acid to whole milk, in the proportion of 1½ drachms to the quart. This gives a concentration of about 0·5 per cent. The acid is stirred into the milk (which must be cold), the last half being added very slowly drop by drop, and thoroughly stirred in, to prevent the formation of

large curds. As the last drops are added a fine flocculent curd appears. Sugar is added in the amount and in the form considered advisable. Most healthy infants will take cane-sugar quite well, and this can be conveniently added in the form of golden syrup in the proportion of one or two tablespoonfuls to the pint. In very young or weakly infants, where larger amounts of sugar may be required, a less fermentable sugar, such as dextri-maltose, is desirable, since considerable amounts can be taken without causing diarrhœa. Marriott [8] recommends corn syrup, which is prepared by the acid hydrolysis of starch, and contains approximately 55 per cent. dextrin, 30 per cent. maltose, and 15 per cent. glucose, and which has the additional advantage of being very much cheaper than dextri-maltose. Unfortunately, it is not easily procurable in this country; Mellin's food, however, is a comparatively cheap form of dextri-maltose.

Whole Lactic Milk Feeding.

In practice, milk prepared in this way possesses many advantages as an artificial food for infants. In preparation it is very nearly "fool-proof"—certainly more so than any satisfactory method of dilution feeding. Owing to its antibacterial properties it keeps well, and the whole 24 hours' supply can be prepared in about a quarter of an hour and put aside to be used as wanted. On account of its maintaining a physiological H-ion concentration of the gastric contents, it enables the infant to deal satisfactorily with food to the full amount of its nutritional requirements, even in the presence of parenteral infections, which are usually accompanied by serious lowering of the gastric acidity and handicapping dyspepsia. Healthy infants on whole lactic acid milk gain weight steadily and satisfactorily in the manner usually associated with healthy breast-fed infants, and like these they are firm and their muscles are of good tone.

Modifications of Whole Lactic Milk.

Certain modifications of the ordinary lactic milk are sometimes indicated. Various sugars can, as has been indicated, be used according to the nutritional and digestional requirements. Skimmed lactic milk is often very useful. It is prepared in the same way as the ordinary form, using skimmed instead of whole milk. It is of value in cases of fat intolerance with large soapy stools and failure to gain weight—Finkelstein's "Disturbance of Equilibrium." It is often helpful in diarrhœa cases, especially dysentery and enteral diarrhœas, where presumably the fatty acids, which are tolerated by a healthy mucosa, add insult to injury in one already irritated by bacteria and their toxins. Protein in some such form as Mead's "Casec" may usefully be added to raise the calorie value of the mixture and lessen fermentation.

Contra-indications.

With regard to contra-indications it seems, according to Wills, Sanderson, and Paterson,[7] that there is some reduction in the percentage retention of calcium, but since very considerable excess of this element is present, this does not seem to be of serious import. No signs of deficiency as a result of whole lactic milk feeding have been observed.

Of more serious significance is the observation of Clausen,[9] that in the presence of anhydræmia or circulatory failure from any cause there may be a very marked increase in the blood lactic acid, as much as 150 mg. per 100 c.cm., as compared with the normal 10–30 mg. with the production of acidosis. It would seem unwise in such a case to give lactic acid milk until the anhydræmia had been overcome, with resultant disappearance of the acidosis. Incidentally, it appears that over-enthusiastic attempts to combat the acidosis in these cases by means of alkalis has not infrequently led, when the acidosis had rapidly disappeared, to alkalosis, tetany, and death. A good many infants have probably been killed by baking soda. The aim in such cases of anhydræmic acidosis should be to restore the blood volume and circulatory function as early as possible by means of fluids administered enterally and parenterally, the acidosis disappearing spontaneously when this is accomplished.

There is considerable difference of opinion regarding the suitability of acid milk as a food for very young infants. Marriott considers that it can be used safely and with advantage from birth. Faber [6] recommends that it should not be used for infants under six weeks, while Parsons [10] gives three months as the earliest age for its exhibition. We have used it with gratifying results in several cases under three months. Faber gives the theoretical considerations which led him to set the limit at six weeks. Breast milk for the first ten days of lactation contains more or less colostrum and has a definitely alkaline reaction. The stomach of the new-born infant holds about 1 oz., so that if a feed, say, of 3 oz. be taken, a large part of it must pass through very soon into the small intestine, and much of the digestion must be intestinal rather than gastric. From this he concludes that it may well be advisable by increasing the alkalinity to lower the buffer resistance to alkaline change. Against this view it must be remembered, as has been pointed out, that such low H-ion concentrations favour the passage of unchanged protein through the pylorus, and that this, while it is probably of little moment and may even be of value in the case of human milk, is very possibly not without danger when cow's milk is being used. Indeed, Anderson and Schloss [3] have suggested tentatively that the entrance of the foreign protein of cow's milk into the blood of infants may have some causative relationship to the nutritional disorder in which it is found. Since whole lactic milk has a much higher calorie value than breast milk and dilution formulæ, a similar volume will meet the nutritional requirements. If not more than 2 oz. be given at each four-hourly feed and sterile water be given between feeds to maintain the optimum fluid intake, most of the early digestion is likely to be gastric, and duodenal disturbance will thus be largely obviated. One of the cases here reported was on lactic milk from birth, and has never been below the normal healthy weight line, in spite of a fairly sharp attack of bronchitis. Nevertheless, there can be no doubt that it is in the first month that it is most difficult to find a satisfactory substitute for natural feeding, and in our series the happiest results have been obtained in those infants who have had at least a month of breast feeding.

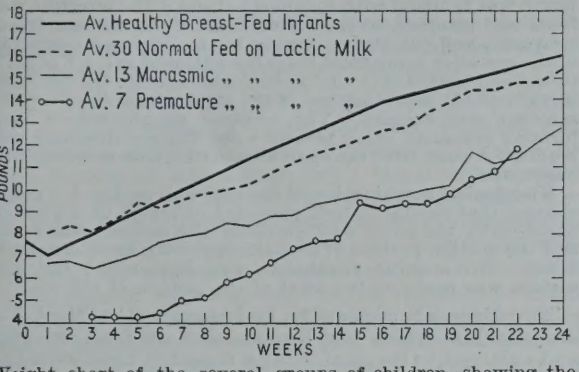
Results of Lactic Milk Feeding (50 Infants).

Every one of our 50 cases had at some time during the period of observation an upper respiratory infection, usually the ordinary "nasal discharge." Five had pneumonia, five dysentery (Sonne bacillus), and three whooping-cough, so that there was no undue selection. The age-period at which they were studied was 0–6 months, since after the latter age they almost all had additional food. The period of observation varied from two weeks to six months, the average being 8·8 weeks. The average weekly gain in weight was 5·0 oz. There were seven deaths during the period under consideration. The causes of death were as follows: Pneumonia, three; marasmus, two; prematurity, one; enteritis, one. The infants were divided into three groups: (1) normal, or slightly subnormal; (2) marasmic; and (3) premature. The accompanying weight chart of the three groups is self-explanatory.

Group 1.—There were no deaths in Group 1 in which there were 30 infants. The average gain in weight in these was 6·0 oz. per week. Three of these had whooping-cough, two dysentery, and one pneumonia. Amongst the remaining 24 the average weekly gain was 6·5 oz.

Group 2.—As a criterion for Group 2 we took Leonard Parsons's definition of marasmus: "The basal metabolism of the infant has been found to fall outside the limits of the normal when the child had lost one-fifth of its body weight. A child, therefore, can be considered as marasmi

if its weight is less than four-fifths of the expected weight for its age." There were 13 infants in this group. The average weekly gain was 3·9 oz. Two had Sonne dysentery and one pneumonia. Excluding these the average gain of the remaining ten was 4·5 oz. Three of this group died, one of pneumonia, while the cause of death in the other two cases was given as marasmus.



Weight chart of the several groups of children, showing the results of lactic milk feeding.

Group 3.—There were seven premature infants, of whom four died, two of pneumonia, one of enteritis, and one of prematurity. The average weekly gain was 2·7 oz. Another had Sonne dysentery and survived. She is now doing well. Of the two who escaped serious illness, one gained 26 oz. in three weeks and the other 29 oz. in nine weeks.

Summary.

1. Fifty infants have been fed with lactic acid milk as a routine food. They varied in age from 1 day to 6 months, and the results were very satisfactory, comparing most favourably with those obtained with ordinary methods of dilution feeding.

2. The advantages of milk of this type as an infant food are: (*a*) Preparation. The milk is easily prepared, requiring no complicated calculation. The whole 24 hours' supply can be prepared at one time. (*b*) Relative sterility: On account of its nature, the milk remains free from harmful organisms for a considerable time. (*c*) Digestibility: The overcoming of the high "buffer" value of the sweet milk renders it easy of digestion for the infant. (*d*) Calorie value: The milk has a high calorie content, so that the full nutritional requirement can be given without excessive bulk.

3. The milk can be suitably modified in pathological conditions.

4. The milk should not be used in cases of anhydræmic acidosis until the acidosis has been overcome. Some authorities hold that acid milk should not be fed during the early weeks of life. We have used it in several infants of a few weeks old, and neither theoretical considerations nor clinical experience has led us to subscribe to this caution, provided reasonable care is exercised and over-feeding guarded against.

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Clinical and Laboratory Notes.

VERTEBRAL FIBROSIS:

"CELLULITE" OF THE NECK.

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THE fibrosis of subcutaneous connective tissue called "panniculitis," and the fibrositis of muscles, their fasciæ and sheaths, have been the chief localisations described by Swedish physicians under the name of "cellulite," and mentioned by L. L. Jones Llewelyn [1] in 1915 and Ralph Stockman in 1920. We have, I believe, no account of any other localisation.

I have for three years observed [2] at Aix-les-Bains in rheumatic and gouty patients on the one hand *nodules* located in the suboccipital region, on the transverse processes of the atlas, and on the other hand in the cervical grooves deep-seated *thickenings*, probably juxta-periosteal, which I believe to be due to "cellulite." This "cervical cellulite" gives rise to headache or to neuralgic pains radiating down the shoulders, the arms, and even precordial region, phenomena which may escape one's investigation and cannot, therefore, be properly treated until the practitioner ascertains their cause.

The following statement made by Stockman [3] confirms my opinion:—

"It is remarkable that this condition has attracted so little attention from medical writers. By Swedish physicians and masseurs the name 'myit' has for long been given to muscular rheumatism, and 'cellulite' to the somewhat similar pathological condition affecting the subcutaneous tissue. But until comparatively recently the latter has been almost unrecognised outside Sweden."

If the "cellulite" of muscles and the "panniculitis" which are comparatively easy to recognise have escaped observation, as Stockman says, *a fortiori* have the deep-seated nodules and the thickenings due to the cervical fibrosis passed unnoticed.

Signs of Cervical "Cellulite."

For the detection of the cervical "cellulite," the patient must either sit astride of a plat-backed chair facing the doctor, his arms crossed over the back of the chair, his forehead leaning on his arms, or be simply seated, his head leaning against the chest of the doctor. In either position the muscles of the neck are relaxed to allow of deep palpation. On both sides the tips of the fingers begin first to explore symmetrically the mastoid region and the transverse processes of the atlas. Then, getting nearer the median line, they penetrate the cervical grooves and gradually descend to the shoulders.

The knotty condition of the atlas feels like a globular tumour the size of a little nut, capping its transverse process, and more or less painful on pressure. The tumour is usually unilateral and situated on the left side. Its outline is sometimes sharp, at other times not clearly defined, and it may involve the transverse process of the axis. The thickening in the cervical groove appears either as a round cord or as little swellings, varying in size from a split pea to an almond, extending over several vertebræ, parallel to the articular processes, hard, tender on pressure, giving rise to pain radiating down the arm. It is to be noted that these conditions are much more frequently met with on the left side.

Diagnosis.

In the suboccipital region the anatomical conditions are most favourable for the development of

[1] L. L. Jones Llewelyn and A. Basset Jones: Fibrositis. London.
[2] Cellulite Vertébrale du Cou, Société Médicale de Paris, Mars, 1924.
[3] Ralph Stockman: Rheumatism and Arthritis. Edinburgh, 1920, p. 62.

"cellulite"—a remarkable association of tendons, ligaments, aponeuroses buried in connective tissue. The transverse process of the atlas gives attachment to numerous ligaments, tendons of six muscles, and their serous bursæ.

Radiography shows that these nodules and thickenings are not of bony origin, although it may happen that juxta-periosteal "cellulite" turns into osteo-periostitis, and thus produces a true bony nodule or an exostosis. Such pathological development is pretty frequently met with in gouty or so-called "arthritic" patients.

It is easy enough to differentiate a gland from the nodules or cellular tissue thickenings of the cervical space, for the glands are movable. It is a question of experience and delicate palpation which needs practice and much patience.

Symptoms.

Two kinds of symptoms are caused by cervical "cellulite": aches and joint troubles. Aches are by far the dominating symptom. According to the seat of the "cellulite" they differ.

To the "nodule" of the transverse process of the atlas are due headaches, cervico-occipital or epicranial neuralgias. To the thickening of the cervical groove is due the cervico-brachial neuralgia or neuritis with sometimes *pseudo-cardialgic* symptoms. Patients complain of a dull aching pain in the nuchal region and of permanent or intermittent pains spreading to the arms, occasionally accompanied with paræsthesias, numbness, and tingling sensations in the hands.

The pseudo-cardialgic symptoms are highly interesting on account of the errors of diagnosis they may lead to. They correspond to the irritation of the roots of the fifth and sixth cervical pairs. The pain is, as in sciatica, increased by effort and cough, and may make the patient anxious about his heart. Within two years Prof. Vaquez and I have met with two such cases.

Articular troubles.—The joint troubles caused by the "cellulite" consists in a certain stiffness of the neck and of the head. The amplitude of the movements is limited by a certain degree of contracture of the muscles, resulting from the painful joints of the articular processes (rotation of the head, lateral and antero-posterior flexion). In consequence the patient has to find for himself a good position in bed to rest his head, and is often awakened in the night by recurring pain due to the shifting of his position during sleep. Vertebral "cellulite" of the neck has been observed by me in arthritic subjects very frequently; about 20 per cent. of the cases of gout and chronic rheumatism.

The *treatment* by Aix methods: local natural vapour baths (radio-active) applied to the neck, followed by general and local douche-massage, has been most satisfactory. At home patients may be benefited by hot-air applications and skilled massage.

AN UNUSUAL CASE OF INGUINAL HERNIA.

BY W. B. JOHNSON, M.B. LOND., F.R.C.S. ENG.,
SPECIALIST, WEST AFRICAN MEDICAL STAFF.

THE following case presents features of interest which seem to be worthy of record.

A male native, aged about 45, was sent to me from a pagan district in the Northern Provinces of Nigeria with a large scrotal swelling reaching to the level of the knees. The history was indefinite, as nobody understood the patient's language, but it appeared that the swelling had been present for many years and that it had given pain and discomfort for several weeks. He was running an evening temperature of from 99° to 101° F. The bowels were opened with aperients.

Operation was performed under spinal anæsthesia with the assistance of Dr. W. E. S. Digby. The condition proved to be a right inguinal hernia with acquired sac. At the neck of the sac, below the external ring, lay a loop of small intestine which was adherent to the sac wall. Attached to the loop by a broad pedicle, and completely filling the greater part of the sac, was a cyst containing 4¼ pints of brown semi-purulent fluid (presumably infected blood-clot). The cyst wall varied from ⅛ to ¼ in. in thickness, and the cyst was entirely shut off from the gut. Below the hernial sac, at the bottom of the scrotal swelling and entirely separate from the sac, lay the testis, the tunica vaginalis containing a small hydrocele of clear, straw-coloured fluid.

The cyst was cut away from the intestine, the wall of which was repaired with Lembert sutures; the intestine was freed and returned to the abdomen, and the sac was freed, ligatured, and cut away. Owing to the damaged condition of the gut after being freed from the adherent sac, a Kocher's tube was inserted into the peritoneum through the sac, and in view of the septic nature of the fluid within the cyst the scrotum was drained. The scrotum suppurated—a gas-forming organism being present—and further drainage was required a week after the operation. Otherwise recovery was uneventful.

Histological examination of the cyst wall by Dr. A. Connal showed that the inner wall consisted of layers of organised blood-clot; the outer wall consisted of a serous membrane, and the median portion of fibrous tissue with areas of muscle fibres. No mucous membrane was discernible, but the section was made at the level of the pedicle of the cyst.

The diagnosis appears to lie between (1) a Meckel's diverticulum which had become shut off from the gut and enlarged to its great size by repeated hæmorrhages into its interior, or (2) a degenerated fibromyoma of the gut wall.

A CASE OF PNEUMOCOCCAL SEPTICÆMIA.

BY A. L. B. STEVENS, B.M. OXF., M.R.C.S. ENG.

THE following case seems to be of interest:—

The patient was a schoolboy, aged 15½. He had had a chronic discharge from his right ear for some years and was also subject to asthma. At the beginning of February, 1927, he ran a slight fever of 99° F. and was confined to bed for a few days, afterwards making a satisfactory recovery. Many of his schoolfellows were ill in bed with similar symptoms at the same time.

On Feb. 15th he complained of earache and was put to bed. On the 16th his right ear began to discharge freely, signs of bronchitis developed in the chest, and in the evening temperature rose to 104·6° F. On the 17th there was a sharp attack of epistaxis and the temperature again rose to 105° F. in the evening, the ear still discharging freely. Signs of bronchitis became more marked and some blood-stained sputum was coughed up. Epistaxis recurred on the 18th, 19th, and 20th.

On Feb. 18th there was a sharp attack of hæmaturia which also persisted until death. On the morning of the 19th there were early signs of consolidation at the right base and by evening the whole of the right lower lobe showed typical pneumonic consolidation. The patient was restless and bright-eyed; there was a hectic flush on each cheek and he was suffering from want of sleep. Sharp pleuritic pain developed in the right side the same evening. The abdomen was tumid and there was definite enlargement of the spleen which was tender on pressure.

A blood culture was done the following day, Feb. 20th, and in 17 hours pure cultured pneumococci were obtained from all five tubes. The white cells of the blood taken at this time numbered 22,900. In the afternoon of Feb. 21st the patient became collapsed and perspired profusely. He died at 6 o'clock the same evening.

Throughout the illness there was no evidence of petechial hæmorrhages on the skin. There was at no time any indication of headache or other signs indicating involvement of the central nervous system. The case appears to be worth recording because of the acuteness of the infection and because it is comparatively rare to find that septicæmia of such virulence is due to pneumococcus. References in medical literature are few.

WESTMINSTER EYE HOSPITAL.—The foundation-stone of the new premises of the Westminster Eye Hospital in Broad-street, Bloomsbury, was laid last week by the Duke of Connaught, who spoke of the innovation of setting apart 14 rooms in the new hospital for patients who could not afford a nursing home, but were willing to pay for comparative privacy. It is estimated that the new hospital will cost between £20,000 and £25,000 a year as compared with the £10,000 needed for the old premises at Charing Cross.

Medical Societies.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

A MEETING of this Society was held in the new Institute of Preventive Medicine at Cardiff on July 1st and 2nd, Prof. E. H. KETTLE in the chair.

A. LEITCH (London) had found that the pancreas of a hen bearing a Rous sarcoma without any metastases would originate a tumour if minced up and inoculated into a fresh hen; the liver and other organs, similarly treated, gave negative results.—S. RUSS (London) immunised rats with injections of tumour tissue treated with X rays; those which were resistant to subsequent implantations of the same living tumour were also more or less resistant to other tumours; the reciprocal efficiency of immunisation varied among two sarcomata and two carcinomata.—F. A. PICKWORTH (Birmingham) found that a remarkably high proportion of asylum patients agglutinated typhoid, Gaertner and other allied bacilli; the homologous and heterologous responses to typhoid vaccine varied a great deal in different individuals. He suggested that chronic subinfections played some part in their mental state.—P. BRUCE WHITE (London) distinguished three kinds of unspecific agglutination, working mostly with rough Salmonella variants; simple salt sensitiveness, removed by extraction with alcohol and restored by encrusting the extracted lipoids on to the bacilli again; with heated rough strains alcohol had no effect; agglutination with any serum is removed by extraction by alcohol, leaving the specific serum agglutinability unaltered.—J. A. ARKWRIGHT (London) showed that agglutination by somatic and by flagellar agglutinins could be clearly distinguished microscopically, the clumps in the former moving about as a whole by the action of the free flagella.—G. H. EAGLES (Beckenham) had tried a Ramon flocculating test with scarlet fever toxin and antitoxin and found that the results had no relation to the neutralising power as measured by the skin test.—H. R. DEAN (Cambridge) had with some difficulty demonstrated that complement fixation does occur in toxin-antitoxin mixtures at about the same relative concentrations which give the best precipitation.—P. HARTLEY (London) tested the antigenic value of Ramon precipitates from diphtheria toxin; it is considerably depressed by the simultaneous injection of muscle extracts but not by peptone solutions.—T. DALLING (Beckenham), repeating his work of the previous year on the prevention of lamb dysentery, showed that less than 1 per cent. of the lambs of ewes dosed with welchii toxin-antitoxin died of the disease, while more than 8 per cent. of the lambs of control ewes succumbed. Of lambs receiving a dose of welchii antitoxin soon after birth 1 per cent. died compared with 20 per cent. of the controls. The variety of *B. welchii* which was constantly isolated from infected animals in Roxburgh, Northumberland, Wales, and Wilts seemed peculiar in several respects and may possibly prove to be another species.—J. F. GASKELL (Cambridge) had noticed that the virulence of pneumococci in culture is consistently lower in the summer months than it is during the pneumonia season from December to April, and that severe experimental lesions can best be obtained during the winter months.—H. D. WRIGHT (London) showed that the difficulty of testing the bile solubility of pneumococci in cultures containing serum and glucose arose from an acid precipitation of proteid.—J. MCINTOSH and P. LAZARUS-BARLOW (London) for testing the fermentation reactions of streptococci recommended the use of poorly buffered media, phenol red as indicator, and rigorously purified sugars.—S. P. BEDSON (London) showed that the virus of herpes hardly ever comes through collodion filters which pass a good deal of the accompanying proteid; the virus must therefore be larger than the proteid molecule.—G. W. T. H. FLEMING (Dorchester) demonstrated the value of Jahnel's method for staining spirochætes in the nervous system.—A. PINEY (London) had studied the effect of large doses of X rays on the blood of rabbits. A pronounced leucopenia is followed by a transitory leucocytosis, lymphocytes are permanently diminished, red cells not much altered though nucleated forms may be abundant. The most marked internal changes are in the spleen and the animals waste away and die in about a month.—L. J. WITTS (Cambridge) described how the large lymphocytes, monocytes, and clasmatocytes of the blood and exudates could be readily distinguished by Sabin's supravital technique with neutral red and Janus green.—C. H. WHITTLE (Cambridge) found that agar or egg cultures were satisfactory for the routine determination of the mouse virulence of pneumococci.—R. W. BROOKFIELD (Liverpool) discussed the relationship between red cells showing punctate basophilia and reticulocytes in patients under treatment with lead colloid. On the whole the two vary in abundance in parallel and it is suggested that the stippled cells are regenerative forms (reticulocytes) modified by the toxic action of lead.—R. W. SCARFF (London) by feeding rabbits for a long time with cholesterol produced a considerable increase in blood cholesterol, no change in blood pressure, and extensive atheroma of the aorta and its larger branches without change in the smaller vessels. Changes most similar to those of human atheroma were obtained by feeding with cholesterol for six months, and then leaving the animal for six months before examination.—E. E. GLYNN and A. D. FORDYCE (Liverpool) exhibited a well-marked example of precocious sexual development in a boy of 2 years of the "infant hercules" type. There was a tumour of the left adrenal with metastases in lung and brain. The right adrenal was atrophied; pituitary and thyroid normal.—H. H. GLEAVE and G. WILSON (Sheffield) dealt with a case of suprarenal virilism in a women of 36, cured by removal of the tumour.—C. J. POLSON (Manchester) described a number of rabbit tumours (myosarcoma and carcinoma of uterus, carcinoma of kidney, endothelioma of peritoneum, &c.), two examples of lithopædion in rabbits, and an unrecognised carcinoma of breast which was the origin of extensive metastases.—G. S. WILLIAMSON and INNES H. PEARSE (London) pointed out that the active secretory (adenoid) tissue of the thyroid, commonly abundant in the fœtus, about puberty and during pregnancy, contains no iodine and none of the differentiating substance revealed by the tadpole test.—G. S. WILLIAMSON and HILDA CUNNINGTON (London) demonstrated the relation of the iodine content and tadpole activity of a number of different human goitres.—C. M. ACLAND (Cardiff) exhibited her method of mounting museum specimens in celluloid boxes.—S. L. CUMMINS (Cardiff) showed specimens illustrating the effect of sanocrysin on rabbits infected with tuberculosis, J. GORDON and F. C. HAPPOLD (Leeds) a carcinoma of the ovary in a hen, H. COLLINSON and M. J. STEWART (Leeds) a chronic ulcer of the stomach with miliary tuberculosis of the mucosa, C. E. JENKINS (Manchester) a new form of porcelain filter allowing the use of small quantities of liquid, E. E. GLYNN and C. H. WALSH (Liverpool) achalasia of œsophagus, the lungs in asphyxia from hæmoptysis and preparations from a case of? quinidine poisoning, E. H. KETTLE and J. MILLS (Cardiff) specimens illustrating defence rupture in experimental streptococcal infections by calcium salts and other chemicals, and B. T. TERRY (Nashville) a rapid method of histological diagnosis by staining only one side of thick freehand sections.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

THIRTEENTH ANNUAL CONFERENCE.

THIS conference was held at the House of the British Medical Association on June 30th, July 1st, and 2nd. There was a large attendance of medical men and women, and representatives of various local authorities from all parts of Great Britain and Ireland. Sir ARTHUR STANLEY (chairman of the Council) presided throughout.

OPENING BY THE MINISTER OF HEALTH.

The conference was opened by Mr. NEVILLE CHAMBERLAIN (Minister of Health). He said he was glad to pay official testimony to the work of the Association, which had a long and brilliant record of voluntary work. He had noticed in the annual report that 35,000 deaths from tuberculosis had taken place last year. If in the remarks he was about to make he emphasised rather the decline in the mortality, it was from no desire to be complacent about the position, but only because the degree of success attained in the past made it appear more worth while to persevere in their efforts. Fifty years ago the death-rate from all forms of tuberculosis was 287 per 100,000; last year the rate had fallen to 96—a reduction to almost exactly one-third. What was the cause of this great reduction? It had been shown by Sir Archdall Reid and others that by a slow process partial immunity was acquired by nations. Possibly this same process was still going on, but no proof was available, and he himself preferred to ascribe the drop in tuberculosis mortality to two other factors: (*a*) the improvement that had taken place in the social surroundings of the people, and (*b*) the adoption of special measures. Among the conditions which affected the health of the people one of the most dominating was housing. The strongholds of tuberculosis were to be found in close and dingy dens which still existed in their large cities. The efforts which had been made to purify and ventilate these foul spots must have had much to do with the improvement that had taken place in the tuberculosis statistics. Since the armistice 894,000 new houses had been built, and this alone could hardly fail to have its effect in the future. He hoped it might be possible for him to introduce further legislation facilitating the efforts of local authorities to improve conditions in the worst areas. He was aware that country districts as well as towns were not free from those evils. He would be disappointed if the Rural Workers Housing Act, which was passed last year and which made provision for the reconditioning, repair, and enlargement of cottages in the country districts, did not provide in the future vastly improved accommodation for agricultural workers. With regard to the second factor he had mentioned, the outline or framework of organisation created throughout the country was fairly complete. Theoretically provision was made for the detection of every case of tuberculosis. Some of those present, however, might remember the schoolboy's essay: "The horse is a noble animal, but he does not always do so." The general practitioner was a fine fellow, but he did not always do so, as far as notification was concerned. Tuberculosis was said to be not an easy disease to diagnose, especially in the early stages. But the tuberculosis officers had ample opportunities for examining cases, and their expert advice was always available. After notification came prevention; the health visitor visited the home, advised the patient, and, if necessary, reported the condition of the house to the medical officer of health. Here, too, there was sometimes room for the better working of the machinery. The *county* authority might have investigated the case and felt that housing conditions might be responsible for the disease, but it was the *district* authority which was responsible for seeing that the condition was improved, and these two authorities did not always see eye to eye. After diagnosis came treatment, either by the patient's own doctor or by the dispensary, sanatorium, or hospital, according to the case. But in addition to those processes which he had been describing there were two other aspects of the question which were not wholly official—education and after-care. He was not sure, indeed, that they were any less important than the others of which he had been speaking. Salvation could not be forced upon an unwilling people. A good deal of ignorance upon the subject of tuberculosis still prevailed; many did not understand its infectivity, others did not understand its curability. Education was part of the work which the Association was carrying on with such success. The success of treatment largely depended on the after-care of patients discharged with disease arrested but not cured. They must remember that such people were not normal and that many would never become so. A return to conditions which were insanitary or unhealthy would probably entail a further breakdown in health. Papworth and Preston Hall had given them a vision of hope, of a possibility of a better method, but it was clear that colonies of that kind must require careful organisation, and even then could deal with only a limited number of cases. Further experiment was very desirable in that and in other directions. The establishment of care committees, he thought, was the greatest service that could be rendered. He had the highest admiration for the voluntary task which the Association had set itself. To his mind theirs was a scheme not only of broadest humanity, but also one that had a real national economic value.

Sir JOHN ROBERTSON (medical officer of health, Birmingham; professor of public health, University of Birmingham) then introduced a discussion on

PRESENT LINES OF ATTACK ON TUBERCULOSIS: THEIR RELATIVE VALUE.

The lay public, he said, was becoming every year more anxious to get rid of tuberculosis, and they were prepared to do what was right and to pay what was necessary. They were, however, mystified by the multitude of counsels which were given, with the result that it was difficult to get the concerted and long-continued effort on the things that were of importance. Those who were brought into contact with the whole problem could realise that the reduction in the number of new cases was far more important than the discovery of any panacea for the cure of the disease. There was a great temptation to look after the sick in the case of an illness like this and to neglect the more important principles of prevention. He submitted statistics of incidence of the disease both for England and Wales and for the United States which showed that the influences which were at work in producing a high mortality among males in both countries were very similar. There was a high incidence amongst males between the ages of 20 and 45, the rate of mortality during these years being somewhat uniform, while among females the highest mortality-rate was reached in the age-period of 20 to 25 years, after which time it rapidly declined until the age of 50 years was reached. Another chart displayed showed that for each of the age-groups there had been during the past 25 years a large reduction in mortality, except in the age-groups for females between 15 and 25 years of age, in which there had been a slight increase. The reduction, he was convinced, was a real one. He had been particularly struck by the greatly reduced incidence of tuberculous adenitis, although no statistics as to this were available.

The three outstanding events which had probably exerted the greatest influence in reducing the incidence of, and mortality from, tuberculosis were: the introduction of compulsory general education in 1870; the discovery of the tubercle bacillus and the subsequent methods of immunisation; and the establishment of antituberculosis schemes with their tuberculosis officers, sanatoriums, hospitals, and dispensaries. Of all these factors he believed that the better education of the people had had the most far-reaching effect. There could be no doubt that a modicum of general education

made the people dissatisfied with their unhygienic conditions of life and with the amount and cost of the food-supply, nor could anyone doubt that the exercise of good general intelligence was perhaps the greatest asset in the campaign against tuberculosis. In a large poor-class district in Birmingham, where ignorance prevailed, the rate of mortality from the disease was four times what it was in another area inhabited by intelligent artisans. The most effective method in the campaign was the increase of knowledge of healthy living. He urged the paramount importance of suitable and adequate nutrition and of an abundance of fresh air and sunlight. A very great deal remained to be done in regard to the question of the feeding of the people, although a great improvement had taken place in the last 70 or 80 years in the amount and quality of food available for the labouring classes. There were still people in every class of society risking their health in the dull light and stagnant air of badly constructed workplaces or dwellings. All who had taken an interest in sanatorium treatment for tuberculous patients or for other debilitated people could have no doubt as to the effect on the general metabolism of the body of abundance of fresh air and sunlight, even in cases where a very ordinary diet was given.

Dealing with the question of immunity, Sir John Robertson said it appeared to him that specific immunity was not a thing of value when dealing with the whole subject of tuberculosis, for they must presume that those who had now contracted tuberculosis had at one time or another received some tubercle bacilli which ought to have protected them against subsequent disease. Theoretically this explanation of a general specific immunity conferred by small doses of living tubercle bacilli might be correct, but it appeared to him a dangerous proceeding, and he doubted if any practising physician would knowingly allow his own children to receive such doses. The whole question of the resistance of the individual to infection was a puzzling one, and all of those present must at times have had difficulty in understanding why tuberculosis did not spread in particular cases—e.g., of husband and wife. In other instances they had evidence that the tubercle infection was of a most diffusible type, as was well seen when an infected cow was brought into a cow-house containing animals free from the disease. In such a case his experience was that tuberculous infection in the cow-house was about as diffusible as the infection of measles. Summing up, the speaker said that what was needed above all was a better general education by which alone a community was capable of grasping the meaning and value of knowledge directed to such a special subject as healthy living. The better the education of the masses the better they were able to appreciate the reasons for adopting those measures which maintain health. Special education in the prevention of tuberculosis was also essential. The antituberculosis dispensary as a means of spreading knowledge was probably the most important weapon they had in their campaign against tuberculosis. The lessons taught there were not confined to the tuberculous or the suspects, but reached a large proportion of the population.

Discussion.

In the course of the short discussion which followed Dr. F. E. FREMANTLE, M.P., commenting on the fact that among males between 25 and 55 years of age tuberculosis mortality was almost at a standstill, whereas among females in those age-groups it was steadily coming down, suggested that it was because women were mainly at home and men were usually at work in shops or factories. He inferred from this that the source of infection was greater in factories and workshops than in the homes, however insanitary these might be. He thought that a great deal of the improvement that had been obtained in tuberculosis mortality was due to the earlier discovery of cases, and therefore to the lessening of sources of infection. The point he wished to make was the value of periodical medical examination of all insured persons, as was set out in the resolution submitted a day or two ago to the Minister of Health from the People's League of Health. He urged that medical men should address themselves to the task of discovering, defining, and arresting the cases of tuberculosis in this country.

Dr. E. E. PREST (medical superintendent of the Ayrshire Sanatorium) drew attention to what he called the persecution applied to persons who had been in sanatoriums. The difficulty of getting a person into a sanatorium was largely due to the fact that it was difficult for him to obtain work afterwards. For the same reason doctors were often unwilling to notify cases. In the Inland Revenue Service, if a man had been in a sanatorium he was damned. How, therefore, could a private person be blamed if he followed suit? He had had a case in which a man after years of ill-health had lost his pension; his own doctor had not certified him as suffering from tuberculosis, but another doctor to whom he went at last did certify him. That was why they very often could not get cases until they could be diagnosed by a policeman on his beat. At present, he said, it was necessary for a person to be notified before he could be admitted to a sanatorium; this ought not to be so. If a man handling meat were examined and found to be tuberculous he was immediately notified and removed from his occupation. The result of this kind of procedure would simply be that they would stop all butchers from being treated.

Another speaker referred to the dangers of migratory cases of tuberculosis. Patients came to health resorts from London or from various sanatoriums; they did not call in a doctor; they came in the busy season and the rooms were not disinfected after them—often even the bedding was not changed. He suggested that it should be obligatory on sick people to report themselves.

Dr. H. D. BISHOP (M.O.H., Guernsey) said that in a discussion on lines of attack they could not afford to omit a reference to the line of attack on bovine tuberculosis. Some 20 years ago Guernsey was considered to be free from tuberculosis. There was no case of tuberculosis among dairy cows. Later a few cows were sent to a dairy show in England and contracted tuberculosis. After they returned to Guernsey the tuberculosis mortality in human beings went up rapidly. For the last three or four years, thanks to unremitting care, tuberculosis in cattle had been unknown, and the tuberculosis mortality-rate had come down from 8·5 to 1·7. Incidentally the infant mortality had also come down; between 1910 and 1919 there were 41 deaths under 5 years of age, while during the past years there had been two only. An important regulation was that no animal was allowed to change hands, even between next-door neighbours, or to be exported without being tuberculin-tested. If a positive reaction was obtained that animal was followed up from farm to farm till they could be sure that the infection from that animal was stamped out. No less than 3000 animals were tuberculin-tested every year; last year there had been only two doubtful reactions, both of which on re-testing proved negative. The health of the bovine population was the health of the children.

The last speaker, Mrs. POWELL (L.C.C.), urged that attention should be concentrated on the health education of the young mothers and also of the children.

Sir JOHN ROBERTSON, in winding up the discussion, said that he would like to have heard suggestions from the meeting as to what could be done to make the country so healthy that tuberculosis could not get a footing. He believed that persons who were perfectly healthy would not contract tuberculosis. He agreed with the last speaker that education of the women and children in health matters was of the most fundamental importance. Education should even come before improvement in economic conditions, since such improvement would probably in any case follow in its wake.

At the afternoon session the subject of Housing: Home Conditions was discussed.

(To be concluded.)

Reviews and Notices of Books.

MENTAL DISEASES.

Mind and its Disorders. Fifth edition. By W. H. B. STODDART, M.D., F.R.C.P., Physician for Mental Diseases to St. Thomas's Hospital. London: H. K. Lewis and Co., Ltd. 1926. Pp. 593. 21*s.*

Dr. Stoddart's book ranks high among standard English works on psychiatry. It is written in a clear, concise style, and is equally valuable to the student and the practitioner. The general scheme of the work is excellent, commencing, as it does, with a simple yet comprehensive survey of academic psychology. These opening chapters are of importance since the fundamental functions of mind are too often neglected by the medical psychologist. Dr. Stoddart differs from McDougal in several points, notably he stresses the importance of affection as opposed to conation as the fundamental process of the mind.

For this edition some chapters have been extensively revised and others completely rewritten to bring them into line with recent advances in pathological research. The classification of instincts is taken directly from the Freudian school, with which the writer is obviously much in sympathy. The omission of any reference to the recent work of Pavlov and the Utrecht school on the conditioned reflex and the infracortical localisations is disappointing. The last chapter in this section is mainly devoted to the Freudian theory of the ego and its relationship with the instinctive trends; this relationship is but poorly presented. The second part of the book is devoted to the psychology of the insane; the opening paragraph is not very happy, since it seems to indicate that the psychology of the abnormal differs fundamentally from that of the normal, but the text does not carry out this idea. The third part deals with the actual clinical entities. The classification is clear and concise, the neuroses, psychoneuroses, and psychoses being specially well differentiated. The author regards Graves's disease as a psychoneurosis and amenable to treatment as such; in the light of our present knowledge of this condition this statement seems too dogmatic. The section on melancholia and its differential diagnosis is worthy of careful study; rest, both mental and physical, is insisted upon as the essential part of the treatment. Dr. Stoddart does not distinguish between the melancholia of the involutional state and the depressed phase of manic-depressive insanity, but appears to regard them as the same clinical entity. The ætiology of manic-depressive insanity is viewed from the psycho-analytic angle, and here the author fails to carry conviction. Epilepsy is ranged among the psychoses together with alcoholism and drug habits; this may appear revolutionary, but Dr. Stoddart's arguments in favour of his classification are impressive. His careful observation and clinical acumen are particularly well shown in the description of the physical stigmata and psychological make-up of epileptic patients; but he has followed the teaching of Pierce Clarke rather closely and is probably too optimistic as to the value of psycho-analysis. The chapter on general paralysis has been practically rewritten; the references to the older forms of treatment have been much abbreviated, and space devoted to tryparsamide and malaria. The clinical types suitable for malarial treatment might have been more fully discussed. Idiocy and imbecility are accorded their place in the general scheme, and there is a good chapter on Binet-Simon tests.

The clinical part of the book closes with a chapter on case-taking methods which should be of great importance to the student of psychiatry. There are useful practical hints on general treatment. The book ends with a chapter on the insane and the law, which has been carefully revised; the practitioner will find this of value. The appendix on pathology is well illustrated, but the subject matter is very brief. Dr. Stoddart's book has one grave fault—the frequent interpolation of the findings of the psycho-analytic school, which are neither accounted for nor explained. These spoil an otherwise well-balanced volume. The chapter on psycho-analysis is too sketchy to be of any real value. On the other hand, the student will appreciate the constant manifestation of the author's deep knowledge of organic neurology. Reference is made to the latest work in this field and its importance is never overlooked.

Mental Abnormality and Deficiency. An Introduction to the Study of the Problems of Mental Health. By Prof. SIDNEY L. PRESSEY, Ph.D., and LUELLA COLE PRESSEY, Ph.D., Ohio State University. London: George Allen and Unwin, Ltd. 1926. Pp. 356. 10*s.* 6*d.*

THIS book is intended as an addition to the library of social workers and others whose duties bring them into contact with the emotionally maladjusted and morbid members of the population. The range of the book is comprehensive, the writers stating that they have in view what might be called a course in "applied abnormal psychology." Several chapters are devoted to the art of "case taking"; the need for tact and discrimination are emphasised, and most valuable instruction is given on the range of facts to be acquired for each individual case. In this connexion it is noteworthy that the religion of the patient is never included as a fact to be noted; yet it is surely possible that this might give some colour to the psychic background, especially as it is occasionally stated that Roman Catholics are less prone to psychoneurotic disorders than members of other religious communities. The case studies quoted at length are illustrative of the methods employed and also of the various types of mental disorder.

The second part of the book is devoted to a classification of various mental conditions: normality, the borderline conditions, the functional and the organic mental diseases, and finally feeblemindedness. Special attention is devoted to borderline conditions, which are classified under three headings—the emotionally maladjusted, the emotionally unstable, and the mentally peculiar; the two former groups are correlated with the psychoneuroses, and the latter group with the psychotic personalities. The grouping is rather loosely carried out, the diagnoses not being always in conformity with generally accepted standards. Encephalitis lethargica is not even mentioned as a cause of mental disorder, although one of the cases quoted seems reminiscent of this disease. There are some rather wide generalisations; for example, the use of instruments at birth is suggested as a frequent cause of feeblemindedness. On the whole, however, the chapter on feeblemindedness is comprehensive and clear, the problem being regarded as a social rather than a eugenic one. The numbers quoted for the United States (6·5 per 1000 of feebleminded in men of the ages covered by a draft during the war) are interesting when compared with those of the Royal Commission which estimates 4·6 per 1000 of the total population of England and Wales as feebleminded. Causation and treatment are fully and helpfully discussed, although the rigid analyst may not appreciate the description of his technique as "that quiet but persistent inquiry with regard to the patient's emotional difficulty which is essentially 'psycho-analysis.'"

The writers emphasise the necessity for the early study of mental cases and state that as a matter of fact a diagnosis should be simply a first generalisation in the study of the case; the effort should always be directed towards an intimate personal understanding of the individual.

A wide bibliography is appended at the end of many chapters, and in the appendix the work of Tredgold and of Burt is given prominence. There is also a useful glossary. The style is lucid but careless in

places, and the phraseology may be unfamiliar to the English reader. But he will be missing an interesting and inspiring study if he allows these trifles to prevent him from a careful perusal of the book.

PUBLIC HEALTH PROPAGANDA.

Better than Cure. A Handbook of Public Health Propaganda. By D. M. CONNAN, M.B., B.S. Lond., D.P.H., and H. W. BUSH, A.R.San.I. London: Noel Douglas. 1927. Pp. 172. 6s.

THIS attractively written book is designed to teach the propagandist how to impart knowledge on the prevention of ill-health to the lay public. It deals in 14 concisely written chapters with the need for propaganda, what, whom, and how to teach, the use of apparatus for the purpose, and the results of public instruction. The authors have had three years of intensive experience of publicity methods in the Health Department of Bermondsey, and they have proved that it is possible to arouse a lively interest in health among the people of all ages and social grades. Their use of the kinema and the "multiposter" sign is most ingenious, and some of their couplets show a keen perception of the sort of thing the ordinary mind will easily grasp and retain. For instance, the element of surprise is well exploited in doggerel such as this:—

Shut your window, seal it down,
The surest way to a heavenly crown.

And even the pun is forgivable in the caption to a poster:—

Your Son and Heir
Needs Sun and Air.

Unfortunately all such teaching is apt to be unjustifiably dogmatic. At the very outset the reader may pause at such statements as "the cause of tuberculosis and the methods of prevention are quite well known." We doubt whether the causes of tuberculosis are well understood, and even whether the methods of prevention commonly advocated and practised are the main reason for the recent decline in this disease. Again, is it really "safe to say that at least half the sickness due to these two classes of disease"—viz., digestive and rheumatic—"would never have occurred had the sufferers learnt to take care of their teeth"? The writers deprecate the corporate attitude of the profession in relation to press publicity, believing that "this antiquated attitude of mind is in direct opposition to the trend of the times" and that "the press is deeply concerned in public health matters." We suggest that the attitude of the press to unqualified practice must raise doubts as to the character of their interest in such matters. It is true that the daily press is the most effective channel through which the public can be approached, but it is at least doubtful if the sort of copy acceptable in that quarter is of the highest educative value. We agree entirely with the statement that "quite an elementary knowledge of the principles of hygiene is all that is required, but that knowledge must be accurate." The fault we have to find with the propagandists is that, in a pardonable anxiety to give the people something easily understood, they are apt to forget where knowledge ends and theorising begins. In fairness we ought to say that the writers of the book themselves emphasise this point, but they might with advantage apply the criticism to some of their own teaching.

RADIOGRAPHIC DIAGNOSIS OF BILHARZIASIS.

By Dr. G. O. LOTSY, Member of the Cairo Institut d'Egypte. Cairo: H. Friedrich and Co. 1927. With 11 pages of plates. Pp. 29.

THERE is ample justification for the publication of this monograph. As stated in the preface, there are many elaborate works on bilharziasis, but none has dealt fully with the radiographic aspect. Nowhere could this work have been undertaken to better advantage than in Egypt, where the author is a well-recognised authority on this subject. The text, which is simple and direct, appears in three languages—French, English, and Arabic; considerable stress is laid on the differential diagnosis, for the radiographic appearances of urinary bilharziasis are apt to be a source of difficulty to the young radiologist. In this condition the ureters are frequently involved, and it may be associated with ureteric calculi. These are well seen in the excellent plates, where the outline of the heavily infected bladder sometimes appears quite plainly. In intestinal bilharziasis the deposits of eggs in the large intestine give well-defined opacities of peculiar appearance. The admirable diagrams which accompany the plates greatly enhance their practical value.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

City of London.

The estimated population for 1926 was 13,230. The day population of persons actively engaged in the City is about 440,000 and possibly 1¼ millions of people and 100,000 vehicles enter and leave the city daily.

The 106 births and the 138 deaths allocated to the small resident population made rates of 7·1 and 10·4 respectively. Some of the classified death-rates were: tubercle, 0·91; cancer, 1·28; respiratory diseases, 2·0; and organic heart disease, 1·4.

The infant mortality-rate was 66, that for the whole of London being 64. There were no deaths from influenza and no notifications of puerperal fever or deaths of mothers from childbirth.

Dr. W. J. Howarth, the medical officer of health, states that although considerable improvement has been effected under the new Meat Regulations, it will be some time before conditions are entirely satisfactory. Owing to foot-and-mouth disease an embargo has been placed on pork imported from the Netherlands; as a result, the Irish Free State, the U.S.A., Argentina, and South Africa have increased their shipments. Caseous lymphadenitis is being noticed more frequently in sheep carcasses, and Dr. Howarth suggests that it should be made an offence to cut out lymph glands from mutton and beef, as it is at present n the case of pig carcasses. The Argentine and the Australian governments are both investigating the prevalence of this disease and have given instructions that no meat with glands cut out is to be exported. A considerable number of carcasses and heads of pork are condemned for tuberculosis. It is generally assumed, says Dr. Howarth, that the bacilli are of bovine origin, but inquiries made of the owners of diseased pigs show that frequently the animals have not been fed on cow's milk or been in contact with cows. The suggestion is put forward that the pigs may have been infected by fowls and that a pathological investigation to discover whether pigs may be infected with the avian bacillus might be useful. Slaughtering at Aldgate, which has been carried out for hundreds of years, ceased with the close of 1926. It is usual to examine about 50 samples of milk for tubercle. During 1926 the City bacteriologist, Sir Frederick Andrewes, reports that for the first time no tuberculous milk was found among the samples taken. The number of samples satisfactorily examined was only 34 owing to the premature death of some of the guinea-pigs. Under regulations dated 1926 importers of milk are required to register with the local authority, but no such importers have as yet been registered in the City. Progress is being made with the closure of houses in the Hutchison-street and Vine-street insanitary areas, and provision of accommodation for the displaced tenants is now well advanced.

The proportion of deaths in the City caused by injuries and violence was 2·3 above the average for the previous five years. The percentage was 7·2 in 1926, 5·3 in 1924, and 4·4 in 1925.

A suggestion has been put forward that a convalescent home might be established for the benefit of

the maternity and child welfare committees of the metropolis. Dr. Howarth points out that the charities peculiarly associated with the City make participation in such a scheme unnecessary.

Endeavour was made during the year to solve one of the difficulties of the tinned fruit trade. It is occasionally found that the tins are "blown," although the fruit inside is in perfectly good condition. These tinned products are sealed whilst hot, with the result that the ends of the container become concave on cooling. Several tins, the ends of which had become convex, were examined by the bacteriologist, who found that the contents were quite good to eat and that there was no evidence of bacterial action. The City analyst also examined them and thought that the "blowing" was due to a slight alcoholic fermentation. The circumstances have been reported to the Ministry in the hope that the matter will be further investigated.

Rat repression goes on actively. Dr. Howarth thinks that the number of rats is being kept down, but says that the old English black rat is now three times as numerous as the brown sewer rat. Old City men state that 30 or 40 years ago they were unable to enter their office in the mornings until the rats had been cleared out; these were brown rats, which had practically exterminated the black rats. The black rats now have their chance because the brown rats are being reduced by poisoning and trapping, and the overhead travelling facilities, by electric cables and the like, have been greatly increased for the black rat, who is a wonderful climber. The black rat needs less water than the brown rat and can generally find enough for his needs at sinks, dripping taps, fire buckets, and uncovered closet pans. If all food and water were adequately protected the rat trouble would largely disappear. In support of this it has been stated that Leicestershire mines are free from rats and mice for the first time in the memory of the oldest pitman, due to starvation caused by the coal strike.

SCHOOL MEDICAL SERVICE.

Name of district.	No. on roll.	Av. elem. school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.*
Wigan ..	13,743	12,283	4,379	9,547	21·0
Hull	46,975	39,933	15,526	10,200	10·5
St. Helens .	20,357	18,303	5,984	13,602	44·17

* Excluding uncleanliness and dental defects.

Wigan.

The established position of the clinic as a necessary part of public health work is shown by Dr. H. Whitehead's insistence that the new tuberculosis dispensary (shortly to be erected) should also contain a dental department, an orthopædic clinic, a laboratory, and a section for artificial sunlight and X ray treatment. Children up to 5 years of age come under the maternity and child welfare scheme, and from that age pass under the school medical service with a direct continuity of their preschool records. During the year many sanitary improvements have been made in the schools and there is now only one school with pail-closets.

The compulsory notification of chicken-pox has laid an extra strain on the service, since every case was visited by a medical officer and subsequently by a school nurse, who also visits cases of measles, mumps, whooping-cough, and influenza. From the list given of the periods of exclusion from school for cases and contacts of infectious diseases it would seem that these periods are longer than obtain in most places. A table shows the percentage of verminous children in the schools to vary from 6 to 39; healthy rivalry might help to reduce this high figure.

Playground classes are held in some schools, and during last summer a school camp was established in which 701 boys and girls spent one week under canvas. Dr. Whitehead puts forward an eloquent case for an open-air school, and points out that there are 1200 children in Wigan in urgent need of such treatment. Although there is no organiser of physical training, games and sports are encouraged. The arrangements for an orthopædic scheme are now completed and will shortly come into force. Attention is called to the inadequacy of provision for exceptional children.

Hull.

Dr. W. Allen Daley pays a generous tribute to the late senior medical officer, Dr. J. Fraser, for his "sound conception and careful nurture" of the school medical service in Hull. The report, written by Dr. J. Morrison, formerly of Bristol, admits the slowness of progress and states that the Education Committee is beset with difficulties, not the least being the lack of funds. Myope classes were suggested by Dr. Fraser as far back as 1911, the possibilities of an open-air school were discussed in 1912, and several years ago the use of X rays for ringworm was recommended; but none of these things is yet in being. The need for more dental staff is pressing; the proportion of fillings to extractions stands at 1 to 10 for Hull, compared with 1 to 3 or 4 in the country generally. Ignorance and apathy on the part of the parents are contributory factors. Extra nurses also are badly needed.

The Hull authority have in their own deaf school an example of a wise expenditure yielding excellent results; a natural corollary would be the appointment of an aural surgeon to supervise and assist the work of the school; by the early detection of aural defects handicaps which materially reduce earning capacity might be largely eliminated. The craft classes are doing good work and have been increased, but, as the report states, "the masking of mental deficiency by means of dull and backward and craft classes would not appear to be desirable. Craft classes can be extremely useful as a means for observing doubtful cases and as an intermediary between the ordinary school and the special school both before and after a stay in the latter type." The great necessity is for closer medical investigation of the children concerned; this point is of wide general application, for dull and backward children are also, in a large proportion of cases, physically defective. From every point of view it is essential that they should be under special medical supervision.

This report, as for many years past, makes interesting reading.

St. Helens.

The large percentage (44·2) of defects found in the school-children does not necessarily mean that the general standard of health is lower in St. Helens than in other comparable areas, but rather indicates the adoption of a stricter standard by the inspecting medical officer; for example, 23·9 per cent. of the children examined were noted as having tonsils and adenoids, though only 1·6 per cent. were referred for treatment. In his detailed lists of treatment carried out from 1921–26, Dr. Frank Hauxwell shows how the ordinary school-child is looked after and how defects are treated, but the report indicates also how much the exceptional child is neglected, and its main theme is a well-reasoned plea for the provision of facilities to treat this type of child. The new orthopædic scheme was inaugurated on Oct. 1st and already 40 children have been treated. The immediate urgent needs are for: (*a*) Extension of dental inspection and treatment to include all school-children. (*b*) An open air school. (*c*) An additional clinic for minor ailments and dental defects. (*d*) A special school for cripples. (*e*) Provision for the partially blind. (*f*) Provision for the cardiac cripple. The supply during the year of 2,061,093 school meals, of which 2,053,228 were provided free, scarcely masks the lack of treatment facilities apparent from a perusal of Dr. Hauxwell's report.

THE LANCET.

LONDON, SATURDAY, JULY 9, 1927.

RESPONSIBILITY FOR CERTIFICATION OF THE INSANE.

THE law relating to the responsibility of the medical practitioner for the certification of an insane person cannot be left in its present deplorable state of uncertainty. There is a pleasant maxim or fiction of English jurisprudence that everyone is supposed to know the law, or at any rate that no one is to be excused for not knowing it. Mr. Justice MCCARDIE has made it clear, when giving judgment in DE FREVILLE *v.* DILL, that one of the most careful and learned judges of the Supreme Court is in doubt of the legal principles applicable to the doctor who certifies a lunatic. He expressed the hope that before long the House of Lords would give a clear and final decision upon the two outstanding points of uncertainty. Each of them, he said, was a matter of grave importance both from a legal and a practical point of view. It is indeed regrettable, as Mr. Justice MCCARDIE remarked, that so great a difference of opinion should exist and that a judge at trial should be beset with difficulty and doubt for want of knowing which of the previous decisions he should follow For the medical profession the incertitude is paralysing; its members are embarrassed by exposure to an indefinite personal liability.

The two points at issue, familiar though they are, may be briefly stated once more. The first is the question whether a medical practitioner, when summoned to express an opinion upon the sanity or insanity of a person, owes to that person any duty in the legal sense to exercise care. Dr. DILL was called in to examine Mrs. DE FREVILLE at the instance of her husband or her father-in-law. Mrs. DE FREVILLE did not call him in; she never employed Dr. DILL; she made no contract with him nor did she ever consent that he should act as her medical adviser. Dr. DILL, in examining her and forming his opinion, was acting on behalf of others, not on her behalf. Does a doctor in such a case owe any legal duty of care to the person he examines? It is amazing to find that, although this question stands upon the threshold of such litigation and has frequently been discussed in the past few years, there is no clear answer thereto in any judgment by the final appellate tribunal. Mr. Justice MCCARDIE had to approach the question without the guidance necessary. It is plain that a surgeon who operates negligently on the body of a patient is liable in damages, though there is no contract between the patient and himself. So, too, is the physician who is negligent in giving the patient medicine. Dr. DILL performed no operation and gave no medicine. He merely discharged the rather unwelcome function of intervening between members of a family and expressing an entirely honest opinion that Mrs. DE FREVILLE was a person of unsound mind and a proper person to be taken charge of and detained under care and treatment. On the whole, Mr. Justice MCCARDIE came to the conclusion that the balance of legal authority leaned towards the principle that Dr. DILL did owe Mrs. DE FREVILLE a duty of care. The second question is whether the medical practitioner's certificate is the cause of the certified person's detention. As is well known, the machinery of the Lunacy Act interposes between the certifying doctor and the person certified a vital link without which the person cannot be detained as a lunatic—namely, the judicial consideration of the evidence by a magistrate who, after satisfying himself that the evidence is sufficient, orders the detention. Mr. Justice MCCARDIE definitely states that, in the absence of other legal authority, he would have thought that the effective cause of Mrs. DE FREVILLE'S detention was the order of the magistrate and not the certificate of Dr. DILL. The decision under the Lunacy Act lies with the justice, not with the doctor. The justice can decide as he pleases, whatever the certificate says. Parliament has invested him with a statutory judicial authority in addition to the ordinary jurisdiction of his ancient office. He has full discretion, and he adjudicates *pro tempore* upon the matters placed before him. The doctor's certificate, though an essential requirement, is a mere opinion which of itself possesses no operative force. But here again, after endeavouring to weigh against one another the conflicting views of earlier judges, Mr. Justice MCCARDIE inclined to consider that he was bound by the greater weight of authority to decide against Dr. DILL, though he added that he doubted whether the full effect of the recent case of HARNETT *v.* BOND had been adequately realised.

In reaching, evidently not without misgiving, these two conclusions adverse to Dr. DILL, the learned judge made no attempt to disguise their seriousness to the medical profession. The passage in his judgment which dealt with this aspect calls for the immediate attention of Parliament. During the past seven years, he said, many medical men, acting in perfect good faith, have been exposed to the most prolonged, harassing, and costly litigation on the allegation that they have acted without reasonable care in a matter which is the most difficult, delicate, and indefinite in the whole range of medical practice. It may well be that, as the result of past litigation, many doctors have refused, and will refuse, to take any part whatever in the work of certification because of the perils and anxieties of litigation which may follow. In suggesting that some further protective legislation is needed, the learned judge gave judicial confirmation to views expressed from time to time in these columns. The same views have been uttered in other places where the interests of the medical profession are by no means paramount—for instance, in the House of Lords during the debate upon Earl RUSSELL'S motion some months ago. The Lunacy Act machinery for the certification and detention of the insane was not devised or created to gratify doctors but to protect the public and to benefit the mentally afflicted. The machinery cannot be worked without the medical profession's assistance. If that assistance is to continue, safeguards must be furnished; and if the highest judicial tribunal will not positively state that these safeguards exist, Parliament must forthwith provide them.

THE METHODS OF BESREDKA.

FOR some years Prof. A. BESREDKA, of the Pasteur Institute, Paris, has been putting forward suggestions which are in definite opposition to current teaching about the nature of immunity. Following upon the work of METCHNIKOFF, PFEIFFER, BORDET, EHRLICH, and a veritable host of other investigators and teachers, two main theories have been developed—the cellular, whose parent was METCHNIKOFF, regarding resistance to infection as primarily the work of

the leucocytes and their ferments, and the humoral, begotten largely of the German school, emphasising the importance of the body fluids and the phenomenon of bacteriolysis. The battles of long ago resulted in an agreed peace, and the modern student has been brought up to believe that immunity is governed by both of these influences. But it must be admitted that our knowledge is incomplete and our explanations unsatisfactory; no worker in this field, if he has a critical sense, can feel complacent about their sufficiency. Part of the confusion may be due to the fact that immunological research has opened up so many paths for investigation, and has produced so many useful by-products in the way of clinical tests, that the main issue has been clouded in the complexities introduced by elaborate technique. It is the merit of more recent workers, and of BESREDKA in particular, that they have once again drawn attention to the main problem of the antagonism between the living body and the invading organism.

The earlier and more important of BESREDKA'S theses is now generally known. The body defends itself, he considers, not so much by a general reaction common to many tissues, as by a local reaction in the tissue which is primarily the seat of disease and through which the organism normally gains entrance. This tissue, different in different diseases, he regards as both susceptible to invasion and capable of acquiring an immune state, a theory which has been mainly based on the phenomena of infection by anthrax, in which disease, it is held, it is essential that the skin shall first be invaded if infection is to occur. Experiments have been produced and multiplied which go to show that if anthrax bacilli be introduced into the body without infection of the skin the animal will survive their attack. Conversely no immunity results from infection which avoids the skin, whereas "solid" immunity can be given to animals—and even, apparently, to such susceptible creatures as the guinea-pig—if the virus is applied to the skin in such a way as to produce a mild local lesion. Such ideas present a point of view somewhat fashionable in France at the moment, finding an echo in LEVADITI'S contentions about the "neurotropic dermatoses," and their logical extension suggests that immunity to superficial and septic infections can be secured by dermal inoculation, whilst resistance to typhoidal and dysenteric disease is to be sought through local immunisation of the intestinal mucosa with vaccines given by the mouth. In connexion with this subject attention may be drawn to some extremely interesting observations made by D. B. BLACKLOCK and R. M. GORDON upon an allied phenomenon in metazoal infections, and recently described in our columns.[1] They found that in animals experimentally infected with larvæ of a fly, *Cordylobia anthropophaga*, which can penetrate and exist in the skin, giving rise to boils, a definite degree of immunity follows upon a first infection. This appears from their experiments to be an example of tissue immunity localised in the skin and most pronounced in the area in which the initial infection was produced, although diffusing to the rest of the epidermis. Our knowledge of immunity in metazoal infection is so fragmentary that this contribution deserves grateful attention. At the same time, as the authors state, there is some indirect evidence that the immune state, even if conferred by the skin, may be dependent upon the general metabolic exchanges, since grafts of skin from a susceptible individual eventually become immune when implanted in the body of a resistant animal.

[1] THE LANCET, April 30th, p. 923.

BESREDKA'S stimulating suggestions on immunity are not his only contribution to current thought, for he appears also as the ardent advocate of an entirely new method of bacterial therapeusis. He maintains that the cessation of growth in bacterial cultures is not due to any exhaustion of the pabulum available—as is generally supposed—but rather to the production of an "antivirus" inimical to the organisms' continued growth. This view, which fits in well with the experiments on which MARMOREK founded his belief in the unity of the streptococcal species, has suggested a possible means of treatment. In superficial infections, such as those caused by the pyogenic cocci, he recommends the use of dressings soaked in filtered cultures, and it is said that excellent results have been obtained. The opinions which we have here briefly summarised are expressed at length in a monograph on local immunisation, written by BESREDKA and recently translated into English.[2] In it the bacteriologist and the student of medicine in its broad aspect will find an abundance of novel ideas with a strong infusion of commonsense. He will also find much that is slipshod and uncritical, but this does not mean that the claims do not deserve careful examination and independent repetition, by which alone their worth can be decided.

SCIATIC PAIN.

AMONGST painful diseases sciatica occupies a foremost place, by reason of its prevalence, of its production by a great variety of conditions, of the great disablement it may produce, and of its tendency to relapse. These have led to its recognition as one of the great scourges of humanity. It was in these words that Prof. VITTORIO PUTTI introduced his new conceptions in the pathogenesis of sciatic pain when delivering the Lady Jones Lecture at Liverpool a few weeks ago.[3] This lecture appears at length in our present issue. Prof. PUTTI'S unparalleled experience at the Bologna Orthopædic Institute, of which he has charge, and his great reputation as a technician will ensure a respectful hearing for unfamiliar views. Continental writers, it has been recently remarked,[4] lay great stress on the association of spinal arthritis with sciatic neuritis; the occurrence of bony union between the transverse processes of the fifth lumbar vertebra and the sacrum, known abroad as sacralisation, has been credited with a great variety of painful affections of the lower limbs. Dr. HENRI DUFOUR, of the Hôpital Broussais, brought some of these cases last month before the Paris Medical Society of Hospitals[5]; in them there was not only fusion of the last lumbar vertebra with the sacrum, but the twelfth rib was missing, an observation which he would like others to note and confirm. Dr. DUFOUR is inclined to regard sacralisation as by no means a rarity, although it will be seen that Prof. PUTTI does not regard it as a frequent or potent cause of sciatica. The last lumbar vertebra is on the Bologna showing very liable to congenital variation; the foramen between it and the sacrum is the smallest of the series of openings transmitting spinal nerves; the vertebra itself is exposed more than any other to

[2] Local Immunization. By Prof. A. Besredka, Pasteur Institute, Paris. Edited and translated by Dr. Harry Plotz, Pasteur Institute, Paris. London: Baillière, Tindall and Cox. 1927. Pp. 181. 16s.

[3] THE LANCET, March 12th, p. 557.

[4] J. H. Anderson, Ibid., April 16th, p. 837.

[5] Bull. et Mém. de la Soc. Méd. des Hôpitaux, June 23rd, 1927, p. 922.

the sort of compression and strain which may set up arthritic processes. Herein, according to Prof. PUTTI, lies the explanation of the frequency of nervous involvement in this region. We are not aware of any extensive X ray examination of such cases in this country which would throw light on the Bologna findings, but marked changes have often been found on palpation of the muscular and fibrous tissue attached to the spine long before any bony change has become apparent on the X ray screen. In another region of the spinal column, Dr. HENRI FORESTIER, of Aix-les-Bains, recalls attention to the nodules and thickenings, frequently found in the neighbourhood of the cervical vertebræ in patients complaining of chronic headache and neuralgic pains, described many years ago by Prof. R. STOCKMAN, of Edinburgh. It should prove possible by some special method of screening to demonstrate changes such as these on the radiogram. Spondylitis, when clearly marked by bony change visible on the screen, is already a late stage in the condition. Whatever may be its earliest manifestation —and much more study of the subject is required before a definite opinion can be given—the work at the Bologna Institute is instructive in explaining how vertebral abnormality may cause pressure on nerves in the intervertebral foramina. But the question still remains, Is this pressure sufficient in itself to produce sciatica? Prof. PUTTI seems to hold that the congenital abnormality produces arthritis which in turn leads to sciatic pain, but he does not make it quite clear whether the congenital abnormality may be present without giving rise to arthritis. Clinicians in this country are familiar enough with cases of spinal arthritis in which the evidence of spondylitis is convincing but in which no pain is referred to the endings of the sciatic nerve. It seems likely that in addition to the congenital abnormality which Prof. PUTTI demonstrates so clearly there is a superadded factor of infection somewhere in the body, for there is evidence that removal of a chronic source of infection may cure sciatica even though the spinal arthritis persists. In recalcitrant cases, however, the publication of Prof. PUTTI'S experience should certainly lead to a trial of the treatment which he recommends—namely, active hyperæmia with mobilisation of the lumbar spine.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Dr. A. C. Roxburgh will give a special demonstration at the In-Patient Department of St. John's Hospital for Diseases of the Skin (262, Uxbridge-road, London, W. 14), on July 12th, at 2.30 P.M. On July 15th, at 5 P.M., Mr. G. Viner will give a lecture on Epiphora at the Royal Westminster Ophthalmic Hospital; and on the same date Mr. Archer Ryland will demonstrate at the Central London Throat, Nose and Ear Hospital at 10 A.M. Those desirous of attending this latter demonstration are asked to notify the hospital—Museum 1539. All these demonstrations are free to members of the medical profession. From July 11th to 16th the St. Mark's Hospital staff will undertake a special course occupying six afternoons and three mornings, and including lectures, operations, X ray and pathological demonstrations. Also beginning on July 11th is a two weeks' vacation course at the Prince of Wales's General Hospital, Tottenham, which will include instruction in medicine, surgery, and the specialties. The formal lectures at 4.30 P.M. are open to members of the Fellowship of Medicine. A four weeks' course in neurology at the West End Hospital started on July 4th, consisting of lecture-demonstrations at 5 P.M. daily. From July 13th to 30th a course in infectious fevers will be held at the Park Hospital, Hither Green, S.E. Instruction will be given on Wednesdays at 2.30 P.M., and on Saturdays at 11 A.M. Two special courses will take place in August—one on Diseases of Infants at the Infants Hospital, from August 8th to 20th, and one on Medicine, Surgery, and the Specialties, at the Queen Mary's Hospital, from August 29th to Sept. 10th. A general course of work, for which a separate programme is issued, is also provided by the Fellowship at the associated hospitals. Copies of all syllabuses and of the *Post-Graduate Medical Journal* are obtainable from the Fellowship of Medicine, 1, Wimpole-street, London, W.

Annotations.

"Ne quid nimis."

THE "CHEMIST AND DRUGGIST."

WE offer our congratulation to the *Chemist and Druggist* on the production of a special number (June 25th, 1927) which can be described as a triumph of trade journalism. Not even in the United States of America, where they do these things so well, do they produce anything better than this; and when we consider that this large volume—too large to be sent through the post—was delivered to its subscribers at almost the usual time on the ordinary day of publication, and this without impairing the up-to-dateness of its market news, we think the editorial staff, the printers and publishers have done something of which they can be justly proud. The *Chemist and Druggist* was, we believe, one of the first, if not the first, trade paper to be produced in this country; there were, of course, scientific and professional journals in being a considerable time before our Cannon-street contemporary issued its first number, as for instance (not to mention ourselves) the *Pharmaceutical Journal*, which at that time, if our recollection is right, was devoted almost entirely to the scientific side of pharmacy. To the *Chemist and Druggist*, however, belongs the honour of being a pioneer of trade journalism. We understand that this special number synchronises with the retirement from the editorial chair of Mr. S. W. Woolley, who has been editor of the *Chemist and Druggist* for some ten years; in this his final contribution to the chemists' library he has certainly left behind him a monument. Mr. Woolley has, we believe, for many years been a student of times past, and from time to time has given his readers the benefit of his searches in old book shops and libraries and museums both at home and in continental countries. Evidence of the patience and diligence with which he has pursued his hobby is to be found in some of the articles in his last special number. For instance, there is an historical sketch running to some 12 pages, the illustrations, as well of course as the text, in which will no doubt be preserved by every chemist who receives a copy of the paper. There are, for example, reproduced in colours four vellum leaves from the beautiful MS. prepared at Constantinople in 512 A.D. for Juliana Anicia, daughter of the Emperor Flavius Anicius Olybrius. Then, again, the Arabesque border on the first page of the article is from a page of the Galen MS. at Dresden. Indeed, the paper abounds with reproductions of priceless frontispieces: volumes in the Vatican Library, the British Museum, the National Library at Turin, and so on have been utilised by the block maker in a most skilful way. This is only to mention one section of the number; equally worthy of perusal are the illustrated article on the metal utensils used by the ancient druggists and the entertaining, not to say amusing, anecdotes about the quacks of old.

THE INHERITANCE FACTOR IN TUBERCULOSIS.

THE detailed schedules of over 4000 consecutive patients who first attended the tuberculosis institutions in the City of Belfast from 1914 to 1917 are the material from which Dr. Percy Stocks, inspired by Prof. Karl Pearson, has compiled a study [1] of the inheritance factor in tuberculosis. Dr. Stocks has deduced rates of active tuberculosis among brothers and sisters of those tuberculous patients by sex and age-groups; the ages of non-tuberculous brothers

[1] Fresh Evidence on the Inheritance Factor in Tuberculosis. By Percy Stocks, M.D., Medical Officer, Galton Laboratory, University of London. From Annals of Eugenics, vol. ii., Parts 1 and 2, April, 1927. Cambridge University Press.

and sisters were not always available, and for ages over 10 it was assumed that the proportionate age distribution of brothers and sisters was the same as that of the patients themselves. The next step was to estimate comparable rates for the general population in Belfast. Here, again, certain assumptions had to be made to fill in gaps in the data—e.g., that the ratio of deaths to active tuberculosis cases was the same in the whole of Belfast as in the dispensary population. From these rates it appears that tuberculosis of all forms was more prevalent among females than males in the ratio of about 3 to 2; the maximum prevalence in both sexes appeared to be at the school ages, but the fatality was much lower at this period than at any other. At ages under 20 in both sexes the prevalence of active tuberculosis among the living brothers and sisters of the patients was notably higher than in the general population. A more comprehensive estimate was then made by computing on a life-table basis the total numbers at any age, living or dead, who had been previously attacked, and whether the disease was active, latent, or cured. Again, the data were not complete and assumptions had to be made to estimate the numbers "surviving cured." The resulting smoothed curves showed that the total rate of onslaught was greatest in the first seven years of life in both sexes, and from 15–25 in females, and to a less extent from 20–30 in males. In the first of these periods the mortality curves do not show a corresponding steepness. Dr. Stocks estimated for every age the correlation between the incidence in pairs of brothers and sisters, obtaining at all ages after 10 a fraternal correlation of the order 0·25 to 0·3. During the first 10 years of life the association was higher.

As to the relative parts played by heredity and environment, the author lays more stress on the former than the latter, as he considers that if environment acted alone there would be a consistent tendency (which does not appear in the results) for these correlation to decrease regularly after 10 years of age. He points out, however, that the correlation in the first ten years of life is rather higher than would be expected from heredity alone, and suggests that this may be due either to direct infection among young children or a common source of infection, or possibly to the tendency for the tuberculosis officer to have all the brothers and sisters of a young tuberculous child examined, those of school age being more easily accessible than the older ones. It is hard to escape the feeling—and this is to the credit rather than the disparagement of the author—that if the reader begins with doubts he will end with doubts, and if he begins with certainties he will end with the same certainties.

INSULIN IN THE TREATMENT OF MALNUTRITION.

CERTAIN American observers have used insulin in marasmic infants and in debilitated and emaciated adults and those convalescent from various ailments with gratifying results. Recently, Prof. E. Trocello, of Rome, has described the results of 18 cases in a paper read at the Medical Congress at Padua last year, which has recently been published.[1] It should be recalled that Falta, of Vienna, in July, 1925, drew attention to the results obtained by insulin in three emaciated subjects in whom treatment by rest and superalimentation had failed. A rapid and enormous increase of weight occurred. The method adopted by Dr. Trocello is as follows. Every day, with the exception of Sunday, an injection of insulin is given one hour before lunch and dinner simultaneously with a drink containing 50 g. of sugar. The dose administered was 10 to 25 units in accordance with the tolerance of the patient, any hypoglycæmic disturbance being watched for. Out of the 18 young women treated the insulin was discontinued in four cases, one for hypoglycæmic disturbance, two owing to slight fever, and one on the development of tuberculosis. In the remaining 14 cases the results obtained were as follows. At the end of the treatment, which lasted about a month, there was an average gain of weight of 2·00 kg. A month after the termination of treatment an average increase of 2·07 kg. was maintained; in seven cases the increase had diminished, in seven it was intensified. Three months later the mean increase was 2·31 kg. In all cases the weight was above that observed before treatment. During the treatment in nearly all the cases the appetite became enormously increased; in the majority there was a sense of well-being and marked improvement in the neurasthenic symptoms, such as headache, giddiness, tachycardia, and constipation. After four months from the cessation of treatment seven cases were completely cured, marked improvement had taken place in two, some improvement in one, partial relapse occurred in two, and total relapse in one.

[1] Rassegna di Clinica, Terapia e Scienze Affini., xxvi., March–April, 1927.

THE PLAGUE PROBLEM IN SOUTH AFRICA.

PREVIOUS to 1899 there is no record of the occurrence of plague in the Union of South Africa, though it must have been frequently introduced from India it does not appear to have spread. During the South African War, however, plague found its way to the territory now incorporated in the Union from the Portuguese port of Lourenço Marques, and spread inland. In February, 1901, a plague epizoötic occurred in Cape Town docks where large stores of grain had accumulated, and since this time the disease has become endemic and given rise to considerable anxiety. These and other historical details are recorded in a recent publication of the South African Institute of Medical Research (No. XX., Vol. III., pp. 85–256) on the Plague Problem in South Africa by Dr. J. Alexander Mitchell, Secretary for Public Health and Chief Medical Health Officer for the Union of South Africa, Dr. J. H. Harvey Pirie, and Dr. A. Ingram, who are attached to the Institute respectively as pathologist and medical entomologist. During the years 1916–20 the sporadic prevalence of plague in the midland districts of the Cape, in localities where no direct contact with persons infected could be traced, puzzled the authorities. In 1920, from the study of all available information, it was found that the distribution of the outbreaks corresponded with areas or sandy stretches in which the gerbille (*Tatera lobengulæ*) was especially prevalent. Suspicion was therefore aroused that the multifarious rodent fauna of the veldt was acting as a reservoir of plague infection. Soon, in February, 1921, convincing proof was obtained in the death of a farmer near Bothaville, and in the vicinity an extensive plague epizoötic in the gerbilles and multimammate mice was thereby disclosed. Excavation of the burrows and the discovery of numbers of recently dead and dying mice left no doubt on this point. Subsequently more abundant proof was obtained and other rodents, such as the large-eared mouse, the striped mouse, and ground squirrel were found naturally infected. Public attention was riveted on this subject during the extensive epidemic of plague in the Orange Free State in 1923–24. The total number of cases was 329 with 204 deaths; all except six of these cases occurred on farms, and native herd boys were most frequently attacked. In most instances infection was traceable to veldt rodents and about 12 per cent. of cases were pneumonic in type. A virulent rodent epizoötic preceded and accompanied the epidemic. In some localities the carcasses of veldt rodents could be collected by the barrow-full, and it is estimated that 90 per cent. of these creatures had died. The larger rodents, such as the karoo-rat, spring hare, black rat, house mouse, and mongoose were also victims. Fortunately for the prevention of the spread of plague, the veldt rodents are such shy animals that they seldom travel by rail and that, with the exception of the multimammate mouse, they rarely enter the dwellings of man; evidence of the reimportation of plague

infection from the back veldt to Cape Town has so far been lacking. Another very fortunate circumstance is that the species of fleas infesting these veldt rodents are rarely found on the more domestic species or vice versa, so that infection does not travel from one to the other as readily as might have been expected. So far as is known, there has been no plague in domestic rodents in the Union since the Durban outbreak in 1912. Extensive research into the susceptibility of the veldt rodents to artificially inoculated plague has been carried out and showed that with the exception of one species (Namaqua gerbille) all succumb readily to the infection. The work has embraced extensive zoological studies of the ætiology of the veldt fauna as well as of their flea parasites by Dr. Ingram. Some useful practical information has emerged, such as the observation that the yellow mongoose and the suricate feed only on gerbilles when they are sick of the plague, so that the appearance of the fur of these animals in their excreta affords a valuable index of the prevalence of rodent plague in the district. The work has also resulted in the discovery of a hitherto unknown epizoötic disease in gerbilles locally known as the "Tiger River disease" due to a small Gram-positive bacillus—*Listerella hepatolytica*. Field experiments contributed by Dr. Pirie suggest that plague infection can only be kept alive in a scanty rodent population by flea transmission. The report is well illustrated by a coloured map of the Union showing the known distribution of rodent plague, as well as by a number of photographs of the various species of small mammals concerned.

OVARIAN GRAFTS.

STIMULATED by the good results obtained by Voronoff and others by means of testicular grafts obtained from the male monkey, Dr. Latis, gynæcologist to the Israelite Hospital at Alexandria, has applied the same method to the female taking his grafts from the female monkey. The patient, whose case he describes,[1] was 30 years of age and had suffered for some ten years from dementia præcox associated with signs of ovarian insufficiency. She had mental hallucinations with paroxysms of mania. The grafts were implanted on the surface of the ovaries themselves; the laparotomy which this course necessitated had the advantage of allowing an examination of the patient's own ovaries. These were found to be fibrotic and cystic. The operation was followed by the reappearance of the menses and by a marked diminution in the intensity of the patient's hallucinations, with corresponding improvement in her mental condition. There was also an increase in the size of the breasts. Dr. Latis adds to the description of his own case accounts of several operations carried out by other surgeons employing grafts either from a monkey or from other patients on whom an oöphorectomy had been performed. He mentions a patient of Mauclaire's in whom an ovarian graft was reported to have survived for a period of over eight years. He draws the conclusions that there exists a definite sphere of utility for ovarian grafts in gynæcological surgery, and states that good results may be obtained from the use of autografts, homo- or homeo-grafts, by the last named being meant grafts obtained from an allied species—namely, in the case of man, the higher ape.

Interesting though Dr. Latis's case undoubtedly is, we find his conclusions too optimistic. Many surgeons during the last decade have attempted to remedy ovarian deficiency by means of the implantation of human ovaries, and have failed to achieve any results. Blair Bell reports that he has failed to obtain any benefit from the use of homografts, although better success may follow the employment of an autograft. Even if improvement in the patient's condition be noted by the use of a homeograft it is probable that this is not due to vascularisation and survival of the implanted tissue, but to the absorption of a certain amount of internal secretion whilst it is breaking down. It is an unfortunate fact that the use of grafts in human beings gives far less favourable results than in the case of the lower animals. It is impossible to read the description of Steinach's experiments on guinea-pigs and rats without being deeply impressed, but when similar methods are employed in the human species the experiment usually turns out a failure. For some at present unknown reason the grafting of the more highly organised tissues on a human being is unsuccessful. Where apparent success is obtained it can generally be explained by the absorption of internal secretion during the process of degeneration of the graft.

[1] Bruxelles-Médical, June 5th, 1927.

INTERNATIONAL MEDICAL HYDROLOGY.

THE International Society of Medical Hydrology will hold its annual meeting in Rome from Wednesday, Oct. 12th, to Monday, Oct. 17th, under the hon. presidency of Sign. Mussolini, the President-Elect being Prof. Gabbi, of Parma. At the opening session in the University building Prof. Strasser, of Vienna, will open a discussion on the Uses of Water in Acute Disease, after which members will take part in the official opening of a new State bath establishment at Montecatini. Papers will be read on the Biological and Physical Properties of Medicinal Waters, on their Effect on Immunity, and on their Action on Ferments. The list of speakers includes Profs. Valenti, Marfori, and Chassevant, Drs. Mougeot, Ferreyrolles, and Burt, Messrs. Woodmansey and Race. Prof. Zörkendörfer will speak on the Processes of Change in Medicinal Waters, and Dr. Judd Lewis will bring forward proposals for International Standards of Analysis and Measurement. The Society is also invited to Salsomaggiore, and may have an opportunity of visiting the University of Parma. More than 100 names of members and their friends have been already inscribed for the tour, but the list is still open, and the Council will welcome the presence of medical non-members interested in the objects of the Society. Reduced fares and other privileges are offered to the party. Application should be made to the Hon. Sec., I.S.M.H., 139, Marylebone-road, London, W. 1.

ANTERIOR PARATHYROIDS.

SINCE the advances of surgery and of endocrinology combined to make operations on the thyroid a matter of common occurrence, it has become important for surgeons to know the exact anatomical position of the parathyroids. Their classical situation is on the posterior aspect of the thyroid lobes at the junction of the middle and upper third and in the lower third respectively. Several observers have recorded variations. They may be fewer or more than four, and small accessory fragments may lie scattered throughout a wide area. W. G. MacCallum [1] found inferior parathyroids at or below the lower pole, or even behind the trachea or in the thorax. E. H. Pool [2] found one on the front of the isthmus. In a recent issue of the *Canadian Medical Association Journal* [3] Mr. R. J. Millzner records the results of a careful search of all thyroids removed at the University of California Hospital. The parathyroids were usually found quite easily by following up the branches of the thyroid arteries, along one of which they almost invariably lie. They were recognised by their soft flabby consistency and yellowish or pinkish brown colour, as well as by the prominent artery entering the hilum. The percentage found rapidly increased with the development of skill in their detection, and at the peak it was manifest that parathyroid tissue was removed in 28 per cent. of all thyroidectomies. After that the technique was modified in order to reduce the percentage. Of those removed a very large number were on the anterior aspect of the lobe or isthmus, and the alteration in technique, which involved leaving the

[1] Brit. Med. Jour., 1906, ii., 1282.
[2] Ann. Surg., 1907, xlvi., 71.
[3] Can. Med. Assoc. Jour., April, 1927, xvii., 1053.

lateral part of the front of the capsule behind, saved about two-thirds of these. It is now the custom of the California Hospital to have the pieces of thyroid removed searched in the theatre; any parathyroid tissue discovered is implanted in the sternomastoid muscle by Lahey's technique at the conclusion of the operation. The author is uncertain whether these anterior parathyroids are accessory, or normally or atypically located parathyroids, or whether they were originally posterior and have been displaced. On the whole, he concludes that the anterior site is a normal variation and autopsy material has confirmed this. If approximately 10 per cent. of parathyroids lie in front of the thyroid gland while 30 per cent. lie on its lateral surface, it is clear that the recognition of the less common position is of primary importance for the operating surgeon.

"TENNIS LEG."

WE are not familiar with the term "tennis leg" in this country, but in America the term seems to be in current use as a name for a group of injuries which are characterised by more or less damage to the muscles, tendons, and aponeuroses forming the triceps cruris. Under it are also included injuries caused by violent strain of the plantaris. Such injuries and their successful treatment have been well known for many years. A noted case is that of the Edinburgh surgeon and anatomist, Alexander Monro primus, who died in 1767. In his Collected Works [1] will be found a description of his case and of the means which he successfully employed for its cure. A few years ago a distinguished Welsh surgeon suffered a similar injury and described his case and cure. Monro's injury was rupture of the whole of the tendon of Achilles, whereas "tennis leg" is usually a less complete and serious lesion, involving generally only some fibres of the soleus or gastrocnemius or the plantaris tendon. In a recent number of the *Medical Journal and Record*,[2] published in New York, Dr. F. Christopher advocates early mobilisation (with avoidance of violent exercise) in cases of this injury, and records good results. It is interesting to find that after a fortnight's fixation in full plantar flexion, Monro practised active movements and that he stated that his recovery was complete, which it had not been in all of the 16 other cases which he had seen. There can be little doubt, we think, of the benefits to be obtained by massage and heat and early or immediate gentle movement in the slighter cases of this not uncommon lesion. Dr. Christopher does not refer to the use of a high-heeled boot which has been very generally recommended during the early stages of treatment and which was used by Monro.

THE CAUSATIVE ORGANISM OF TRACHOMA.

Dr. Hideyo Noguchi has succeeded in isolating from the trachomatous conjunctiva of man an organism which produces follicles followed by scarring when injected beneath the conjunctiva of chimpanzees. The organism was recovered from the follicles and cultured, when it again produced the same results on inoculation. The announcement was made at the recent annual session of the American Medical Association, when the regular order of business was suspended for an address by Dr. Noguchi on the work he has recently been doing on the bacteriology of trachoma. The organism which he has isolated is a Gram-negative, aerobic bacillus, possessed of motility which may last 35 days in the special medium used for culture. Blood serum from trachoma cases produces marked agglutination of the cultured bacilli, which is not the case with serum from non-trachomatous cases. All Noguchi's bacteriological and experimental results have been verified by Verhoeff in Noguchi's laboratory, while de Schweinitz and Wilmer have expressed clinical agreement with them. The original inoculations were carried out by Noguchi in New Mexico among the Indians at the request of a committee of ophthalmic surgeons, appointed by the Secretary of the Interior, consisting of Drs. E. L. Posey, P. Knapp, W. H. Wilder, and Henry H. Proctor. Dr. Posey has recently given some account [3] of the incidence of trachoma among the Navajo tribe in the South-West States, and of the important activities of the United States Government to combat it. Dr. Proctor has also long been interested in trachoma among the Indians, and it is largely due to his influence that Noguchi left his work at the Rockefeller Institute to pay a scientific visit to New Mexico.

[1] The Works of Alexander Monro, M.D. Edin., 1781, p. 661 and plate vii.

[2] Early Mobilisation in Tennis Leg, by Frederick Christopher, M.D., F.A.C.S., of Winnetka, Ill., Med. Jour. and Record, June 1st, 1927, p. 731.

MEDICAL SCIENCE IN THE CITY OF YORK.

THOSE members of the medical profession who attended the services held last week in celebration of the 1300th anniversary of the Consecration of York Minster must have been assured of the falseness of that saying quoted by Sir Thomas Browne, "Ubi tres medici, duo athei." The long and intimate connexion of the City of York with medicine and surgery, the vastness of the Minster, the pomp and circumstance of the processions and of the services must have left a deep feeling of religious awe on the minds of all present. The seventh day of the celebrations was especially associated with the universities, colleges, and schools. It opened with a solemn Eucharist and procession followed by a midday service. The representatives of the various bodies robed in the neighbouring Church of St. Michael-le-Belfry and entered the Minster in procession through the great west door to the places allotted to them in the nave. The service was fully choral, and a sermon was preached by the Bishop of Manchester in the presence of a very large congregation. There were no representatives from the Royal College of Physicians of London, but the Royal College of Surgeons of England sent their President, Sir Berkeley Moynihan, and two members of the Council, Sir D'Arcy Power and Sir James Berry, to bear witness to the good work which the medical profession has always done in the City of York.

ACTIVITY AND HEALTH IN INDUSTRY.

THE relation between efficient activity and healthy contentment is passing from the realm of theoretical probability into that of ascertained fact. The progress made is reported to us annually by the Industrial Fatigue Research Board, to whose work the historian of the future will, we believe, accredit no little share in the decline of industrial discontent. The latest report [4] indicates the scope of matters under investigation, which include the use of rest pauses in spells of labour, and the value of rhythm in alternating rest and activity; accident causation and the part played by the personal factor, showing how the less efficient workers suffer more sickness and sustain more accidents than good workers; study of the influence of ventilation upon health and output; and the advantages accruing from vocational guidance. Special inquiries under industrial conditions are also afoot into sickness among cotton operatives and among printers, into load carrying, telegraphist's cramp, vision and illumination; others are proceeding in the laboratory into the laws of muscular exercise and the acquisition of skill. All these inquiries, whatever their objective, have one significant characteristic. The Board is satisfied that improvement of the conditions or methods of work for the worker means *ipso facto* an increase in his output, and accordingly the introduction of such methods can never be a matter of conflict between the interests of the employer and those of the worker; these are both

[3] Jour. Amer. Med. Assoc., May 21st.

[4] Seventh Annual Report of the Industrial Fatigue Research Board to Dec. 31st, 1926. H.M. Stationery Office. 1927.

affected in the same direction. In no other country is research on these lines being carried on so broadly or systematically, and British industry is slowly learning to appreciate the economic value of the work done and to benefit thereby.

INFANT WELFARE CONFERENCE.

ABOUT 700 delegates were appointed to the National Conference on Maternity and Infant Welfare, which began its sessions on July 5th. Sir Arthur Stanley, chairman of the Central Council for Infant and Child Welfare, took the chair at the opening of the proceedings and was supported on the platform by Mr. Neville Chamberlain (Minister of Health) and Mrs. Chamberlain, Lady Chatterjee (wife of the High Commissioner for India), medical representatives of the Ministry of Health and of the Scottish and Welsh Boards of Health, and many representatives of the voluntary and statutory bodies interested. As President of the conference Mr. Chamberlain delivered an address to a crowded meeting in the Great Hall of the British Medical Association. He expressed optimism about the probable results of recent legislation and hoped that Bills would become law during the present session for the registration of nursing homes and for making better provision for mentally defectives. The circulars recently issued by the Ministry for securing better notification and treatment for puerperal fever and pyrexia and more prompt attention for ophthalmia neonatorum had met with a good response from the local authorities. With regard to the former, steps were being taken to provide the help of specialists, skilled nursing, and hospital treatment. Mr. Chamberlain went on to refer to the maternal mortality-rate from childbirth and to the need for increased effort to reduce it. He enumerated many hopeful features. Orthopædic schemes had been inaugurated by 129 maternity and child welfare authorities, often in conjunction with voluntary associations. Antenatal work, with its hope both for mothers and babies, was gradually growing. Light treatment was becoming very popular; perhaps, indeed, too popular, for the results were not yet very certain and the dangers from imprudent and promiscuous treatment not small. The supervision of a medical expert and a specially trained nurse were essential. Another gratifying feature of the situation was the increase of trained midwives and health visitors in rural districts. One of the great needs was more attention and better supervision for the child between its first year and its entrance to school. Mr. Chamberlain welcomed these conferences as a sign of the invaluable triple partnership of the Ministry, the statutory health authorities, and the voluntary bodies. Each had something special to offer. The volunteers provided enthusiasm and the backing necessary for new measures, the statutory health authorities provided trained competence and continuity of policy, and the State provided a broader outlook and a wider experience.

THE British Medical Association starts its Edinburgh meeting next week. The annual representative meeting will begin on July 15th and the scientific sections, of which the provisional programme will be found on p. 82, will meet on July 20th, 21st, and 22nd. A centenary celebration, commemorative of the birth of Lord Lister, will be held under the presidency of the Earl of Balfour on Wednesday, July 20th, at 8 P.M., in the McEwan Hall, when addresses will be given by Sir W. Watson Cheyne, Prof. Tuffier, of Paris, Prof. Harvey Cushing, of Harvard, and Dr. James Stewart, of Halifax, Nova Scotia. A Lister memorial volume, to which Sir Edward Sharpey-Schafer, Mr. Alexander Miles, and Prof. John Fraser have contributed chapters, has been prepared under the editorship of Dr. A. Logan Turner. The quarterly meeting of the Royal Medico-Psychological Association will also take place in Edinburgh in the third week of July, the discussions being held jointly with the Section of Mental Diseases of the British Medical Association.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXI.

THE TREATMENT OF MALIGNANT DISEASE OF THE UTERUS.

II. OPERATIVE METHODS AND IRRADIATION.

Wertheim's Operation.

THE operation and, with a few negligible exceptions, the *only* operation worth performing for carcinoma of the cervix, is that introduced by the Viennese gynæcologist, Wertheim, in the early years of this century. Its inventor claimed that by its means about half of the patients who survived it remained well and free of recurrence five years afterwards. Wertheim's claims were fiercely criticised, firstly, on the grounds that his operation had an excessive operative mortality, and, secondly, that his surprising after-results were too good to be true, and even to the present day the operation is looked askance upon in many quarters, and in some countries, notably the United States, it has never fairly been put on trial.

The reason for this is that the operation, if carried out properly, is a very difficult one, and a surgeon taking it up must either learn from one already expert or educate himself, the latter alternative, of course, taking a long time. In the earlier days there was no such choice; surgeons had to educate themselves, with much pain and heavy anxiety, and it is not surprising that many of them, after a few disheartening failures, abandoned the procedure. Those, however, who by one route or the other will take the trouble to acquire the necessary experience and expertness, will find that the claims of the inventor were by no means exaggerated, but just the plain truth, and dependent neither on remarkable good luck nor extraordinary operative gifts. I took up the operation in 1907, and have continued to perform it ever since, and the results I have obtained absolutely substantiate Wertheim's claims. Whilst following the main lines laid down by its inventor, I have made it rather more extensive; thus, I remove the regional glands in every case, not merely when they are obviously enlarged, and I excise practically the whole vagina instead of merely the upper half. Like Wertheim, my earlier cases show a much higher operative mortality than my later ones, 20 per cent. against 12 per cent., but, as I have repeatedly pointed out, the figure of the operative death-rate chiefly depends upon whether or no the operator chooses to undertake very advanced cases, for amongst such the operative mortality is necessarily high. In my series are included a number of "last chance" cases; in fact, I have operated on over 60 per cent. of all the patients submitted to me. Last year I investigated the outcome of 214 radical abdominal operations performed by me between April, 1907, and October, 1921, and to show what can be done for those suffering from this cruel disease I cannot do better than summarise my results here:—

Of 340 unselected patients, 214 had the radical abdominal operation performed on them and 180 survived the operation (operation mortality, 15·8 per cent.).

Five years afterwards, of the 180 recovered patients, 85 were alive and well, 82 had died of recurrence, and 13 had been lost sight of or died of other disease.

Five years' freedom from recurrence was considered by Wertheim as an "absolute cure," but it is an unfortunate fact that 10 per cent. of all recurrences take place between the fifth and tenth years, after which a patient may be regarded as free of any further risk. Taking this into consideration, surgery's achievement in the operative cure of carcinoma of

the cervix may be thus expressed: that were it possible for a surgeon to perform a series of Wertheim's operations in one day instead of spreading them over a number of years, and keep in touch with all the survivors, nor lose any of them by other disease, he would find at the end of ten years that slightly more than one-half of those who had survived the operation had died of recurrence, whilst slightly less than one-half were permanently cured.

Radium and X Rays.

The results that I have obtained by operative treatment are so far superior to anything that in this country up to the present has been attained by irradiation, that I most strongly believe that whenever a growth is removable it should be removed. My experience of radium in the treatment of carcinoma of the cervix is now of long duration, as it has been used in quantity at the Middlesex Hospital for the last 17 years. The results obtained up to the last few years were most disappointing. In some cases a remarkable local disappearance of the growth occurred, and the patient became free of bleeding and discharge for many months or even a year or more; at the end of that time, however, the symptoms recurred, and the patient steadily went downhill and died. In other cases, the spread of the growth was very definitely checked, and the bleeding and discharge much lessened, though the growth remained grossly apparent to the examining finger. Such patients had radium applied at intervals over long periods, but, in spite of it, steadily lost ground, and, what was perhaps the more distressing feature, lost hope. Their lives were undoubtedly prolonged by the treatment, but the months or years gained could scarcely be called happy ones, beset as they were with alternating hope and fear, of which fear eventually predominated. In a few exceptional cases, a cure comparable to an operative cure—namely, freedom from any sign of the growth for over five years—was attained. Against these few complete successes and many partial successes had to be set an equally large number of patients in whom the radium stimulated the growth to increased activity, and materially shortened the lives of the patients by increasing their pain, bringing on foul discharge where none existed before, or producing fistulæ in the rectum or bladder. It must, however, be pointed out that all the patients of whom I am speaking were those in whom the growth was too advanced for operative removal; except in a few instances, radium has not been used in operable cases. Equally disappointing results have been recorded by many other writers.

Of recent years, however, much better results have been published by certain workers, chiefly on the continent and in America, and claims have been made to a percentage of cures nearly equal to the best of those claimed for surgery. The better results obtained are stated to be due to an improved technique in the using of radium, and this improved technique is now being used in England at various places, Middlesex Hospital included. It is too early to speak with confidence yet of the results which have been obtained by these new methods, but judging from cases that have come under my cognisance, I think that the results are better than they used to be. The point that concerns us at present, however, is whether radium should be used in preference to or as an alternative to operation in cases in which the growth is removable, and up to the present no figures published in this country justify such a change in policy. For cases too advanced for surgery, on the other hand, radium is the treatment of election, and superior in my opinion to deep X ray therapy. Even to-day with the improved technique the results obtained in these advanced cases are very unequal. In some great improvement is manifested, whilst in others the patients are made undoubtedly worse and their lives shortened. My experience of deep X ray therapy has been an unfortunate one, for I know of no case in which the growth permanently disappeared, and only a few in which material improvement was obtained. The drawback to X rays is that each application makes the patient so ill. X rays and radium may be used in combination.

Speaking generally of the results likely to be obtained by irradiation, I think it may be said that whilst they are better than they used to be, too much can easily be hoped from them at the present time. A perusal of the literature bearing on the subject shows a discordance of claims as marked in the case of individual workers as are the results in individual patients, and leaves an unbiased observer in a puzzled frame of mind.

Treatment of Carcinoma of the Body of the Uterus.

In the case of carcinoma of the body of the uterus, the only hope of cure lies in a radical operation. It is not necessary in this disease to subject the patient to an operation as severe as Wertheim's operation, because the route of spread of corporeal cancer is different from that of cervical disease, and occurs along tracts more easily compassed by the surgeon's knife. The common path of lymphatic permeation is along the lymphatics accompanying the ovarian vessels up to the glands along the upper half of the abdominal aorta. There is no tendency until very late for the growth to invade the lymphatics accompanying the uterine arteries to the side wall of the pelvis, and therefore there is no need for that wide excision of the paravaginal and paracervical tissue which is necessary in cervical cancer. Most patients with corporeal cancer actually die of metastatic deposits due to the growth penetrating the uterine wall, and entering into the peritoneal cavity, and this often occurs long before the cancer cells have reached the aortic glands. The operation indicated is a total hysterectomy, taking with the uterus the ovaries, tubes, and upper part of the broad ligaments as far outwards along the ovario-pelvic ligaments as possible. This is not a severe procedure in most cases, and the operative mortality is not a high one (about 5 per cent.), and would be lower still if it were not that many of the patients are elderly women, enfeebled by long-continued bleeding and foul discharge. As regards the chances of permanent cure, these are at least as good as those yielded by Wertheim's operation—that is to say, that about half the patients recovering from the operation are permanently cured.

Radium and X Ray Treatment in Corporeal Cancer.

Radium is practically useless in corporeal cancer. No doubt there are certain cases where the growth is quite superficial on the endometrium, in which radium introduced into the uterus would destroy permanently all the malignant cells, but we have no means of ascertaining the depth to which the growth has spread in the uterine wall, short of removing the uterus and examining it afterwards, and hence to use radium in preference to an operation, even where the growth is apparently a very recent development, would be wholly unjustifiable. Moreover, it is in these early growths that surgery can be certainly relied upon to give a permanent cure. Deep X ray therapy I have employed and seen employed in many cases, but I have not seen one in which the patient was cured, and very few in which duration of the patient's life appeared to be lengthened by its use. Whether it should be used as a means of comforting the patient and the patient's friends with the idea that something can be done is a moot point, for the treatment makes the patient feel very ill, and unless carried out in hospital is expensive.

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Special Articles.

THE FREEDOM RESEARCH FUND.

THE Freedom Research Fund was instituted in October, 1925, by the provision of a gift of £50,000 for the promotion of research work in connexion with the clinical laboratories of the London Hospital. Research workers were elected during the year 1926 and the following brief account indicates the lines along which research has been carried out during the first active year of the Fund. The work has been much assisted by the interest and coöperation of the honorary staff of the London Hospital and in particular by the daily intercourse which takes place between the laboratory workers and the staff of the medical unit.

Filterable Viruses.—During the year 1926–27 Dr. S. P. Bedson has been engaged on a study of the viruses of herpes, zoster, and chicken-pox with two main objects in view: (*a*) to throw light on the nature of filterable viruses in general, (*b*) to work out the inter-relationship of these three viruses with special reference to the supposed identity of the viruses of zoster and chicken-pox.

In the first of these two problems the virus of herpes has been employed and the results obtained, generally speaking, support the view that this virus is a particulate organised form of life. This work is being continued. Little advance has been made with the second and subsidiary problem owing to the failure of all efforts to transmit zoster and chicken-pox to laboratory animals. It has not, however, been abandoned. In addition, the opportunity has been taken of investigating other vesicular conditions such as dermatitis herpetiformis, hydroa gravidarum, and pemphigus.

Dr. Bedson has also investigated the rôle of the spleen in purpura. This work has been confined to an investigation of the normal mode of destruction of the platelet, and evidence has been adduced to show that this function is performed by the phagocytic cells of the spleen.

The Antigenic Properties of Serum Proteins.—Miss S. G. Robinson has commenced a study of the antigenic properties of purified serum proteins of different animal species, the object being to find out how far the antigenic behaviour of these lipoid-free proteins parallels their physical and chemical properties. At the same time she has been investigating the antigenic relationship of several Bence-Jones proteins isolated by Dr. L. F. Hewitt from cases of myelomatosis. Her work is not yet sufficiently advanced to warrant the drawing of any conclusions.

The Functional Capacity of the Lacteals.—Dr. H. W. Florey has been engaged on an investigation of the functional capacities of the lacteals of various animals. The rhythmical contractions observed in these vessels in guinea-pigs have been specially studied. In collaboration with Dr. P. Fildes, an examination has been made of the curative effects of massive intrathecal doses of antitoxin as compared with intravenous administration. The conclusion was arrived at that no advantage could be found, in rabbits, in the former method of giving antitoxin. With Dr. H. M. Marvin, observations are being made on the control of the cerebral circulation and the significance of the several factors involved.

Proteins of the Cerebro-spinal Fluid, Blood, and Urine.—Dr. Hewitt has worked out a method for the accurate determination of the total protein content and the amount of albumin and globulins in the cerebro-spinal fluid. A number of normal and pathological fluids were examined and characteristic alterations were found in certain conditions, especially in general paralysis of the insane. With Dr. Florey he is investigating the effect of various drugs on the protein content of the cerebro-spinal fluid.

Proteins of the blood, milk, eggs, &c., have been isolated by Dr. Hewitt in the pure state free from lipoids and characterised by their optical rotation and dispersion. The immunological relations of some of the proteins are receiving attention.

Albumin prepared from the urine of nephritic patients has been shown to have the same optical rotation and dispersion as serum albumin. Bence-Jones proteins from the urine of patients with myelomatosis are being investigated physico-chemically.

Osmotic Pressure.—In conjunction with Dr. J. R. Marrack the osmotic pressures of normal and nephritic sera and of isolated proteins are being measured under different conditions, in connexion with the study of the causes of œdema. The adsorption of various substances by proteins under various conditions is being studied. The occurrence of acetone bodies in the blood of diabetics is being followed (with Miss Brown).

MEDICINE AND THE LAW.

Mosquitoes as a Nuisance.

FURTHER information is now available to supplement the account given in this column on June 25th of the Scottish decision, believed to be the first of its kind, that, if a landowner leaves ditches in a stagnant condition, so that they become a breeding-ground for mosquitoes, to the annoyance of local residents, his action or neglect amounts to a nuisance within the Public Health (Scotland) Act, 1897.

The Section upon which the local authority of the county of Renfrew relied was Section 16, which contains a general definition of nuisances. The Section begins, "For the purposes of this Act," and then enumerates a list of matters which "shall be deemed to be a nuisance liable to be dealt with summarily in manner provided by this Act." The second group of items in the list consists of:—

> "Any street, pool, ditch, gutter, watercourse, sink, cistern, water-closet, earth-closet, privy, urinal, cess-pool, drain, dung-pit or ash-pit, so foul, or in such a state, or so situated, as to be a nuisance or injurious or dangerous to health."

The framework and most of the wording of the Section is founded upon the earlier provision of the English Act (Section 91 of the Public Health Act of 1875), but the English enactment is not quite so elaborate; it omits the words "street," "sink," "cistern," "water-closet," "earth-closet" and "dung-pit." The corresponding London provision (Section 2 of the 1891 Act) is as wide as the Scottish provision, except that it does not contain the words "street" and "sink." It will be noted, however, that the material words "pool, ditch, gutter, watercourse" are common to all three Acts.

The sheriff-substitute in the Paisley case found the following facts: the defender in the action was the proprietor in trust of certain lands at Muirend, Cathcart, comprising three ditches of which complaint was made; the ditches were close to a residential suburb of Glasgow; through the proprietor's neglect they had become so much encumbered with silt and vegetation that they were ineffective as water courses, and that the water which they should have conveyed had been largely thrown upon the adjacent ground; they thus became the breeding-ground of mosquitoes which, to some extent in the autumn of 1925, and to a large extent in the autumn of 1926, attacked people residing in the vicinity; the bites of the mosquitoes caused pain and swelling, and in some cases septic sores, and the presence of the mosquitoes caused reasonable apprehension and diminution of comfort in the community; finally, there was a reasonable probability of the repetition of these conditions in following years. The court proceeded to find, as a matter of law, that the ditches were watercourses in such a state and so situated as to be a nuisance, and injurious or dangerous to health within the

meaning of the statute, and that the proprietor of the land was the author of the nuisance. The latter was therefore ordered to clear the ditches and maintain them properly in future.

Numerous complaints of mosquito bites reached the public health department in Glasgow last autumn from the south-eastern side of the city where these lands are situated. The medical officer detailed to investigate the complaints found the bites to be of varying degrees of seriousness, according to the susceptibility of the patient. Some of the victims, especially elderly ladies, were confined to bed by their medical advisers. In some cases the swelling and redness which developed round the bites resulted in a blister which, when broken, became infected by septic organisms from the skin or clothing. The land on which the ditches stood was a tract of 15 acres known as Bogton Marsh. Presumably no legal consequences follow if such land is left neglected upon a moorland void of human habitation; but the spread of building outward from Glasgow evidently imposed a new obligation upon the landowner. The ground was low-lying, and, in periods of moderate flooding, the water overflowed and covered it continuously. Three types of mosquito are stated to have been found—*Anopheles bifurcatus*, *Culex pipiens*, and *Culicella morsitans;* the first and second of these bite readily both out-of-doors and indoors.

Legal Effect of Shock following Warning of Death.

The *Times* of June 21st reported a case in which an agreement was set aside on an unusual ground. The ground was that the agreement (for the sale of a partnership business) was entered into between two partners at a moment when one of the two was suffering from mental shock in consequence of his having just been told by a specialist that he was suffering from cancer of the stomach and that his death was imminent. It was not suggested that the shock made him insane, but it was contended that the shock of the warning benumbed his mind and made him incapable of bargaining in a matter of business with a man of normal health. After his death the Public Trustee (as his personal representative) applied to the Chancery Court of Lancaster to have the agreement set aside, and the court granted the application and ordered the agreement to be delivered up for cancellation. The agreement had related to the sale of the dying partner's share. The court considered that the share had not been properly valued and that the agreed price was less than the true value, the bargain being thus an improvident one from the point of view of the dying partner. The Vice-Chancellor expressed the opinion that there was a fiduciary relationship between the dying partner and the other partner who was a party to the agreement; this being so, the onus was upon the surviving partner to prove that the transaction was fair and righteous; in the opinion of the court he failed to discharge this onus. There was a conflict of evidence as to what was the effect of the specialist's warning, whether the dying man received it in a spirit of resignation or whether (as the specialist himself concluded) he was so acutely affected by shock that his judgment was overthrown. As already stated, the court took the latter view. It was proved in evidence that the dying man had always been obsessed by a fear of cancer; possibly therefore he was regarded as predisposed or particularly exposed to shock in this respect.

BIRKENHEAD JUBILEE APPEAL.—The Mayor of Birkenhead is anxious that the Jubilee of the Incorporation of the Borough should be marked by a determined effort on the part of all classes to put the leading charitable institutions in the town on a sound financial basis. The minimum sum of £20,000 is required to be divided amongst the Birkenhead General Hospital—which is celebrating its centenary next year—the Maternity Hospital, the Birkenhead and Wirral Children's Association, and the local Invalid Children's Association. Over £6000 has already been promised.

BRITISH MEDICAL ASSOCIATION: ANNUAL MEETING AT EDINBURGH.

PROGRAMME OF THE SCIENTIFIC SECTIONS.

THESE sections will meet from 10 A.M. to 1 P.M. for papers and discussions on Wednesday, Thursday, and Friday, July 20th, 21st, and 22nd. Some of the sections—notably Diseases of Children, Preventive Medicine, Physiology and Biochemistry, Tropical Diseases, Forensic Medicine, Tuberculosis, and Venereal Disease—have arranged for discussions or demonstrations to take place in the afternoons also.

The following Sections will meet on three days:—

Medicine.

President: Prof. G. Lovell Gulland. Vice-Presidents: Prof. J. Hill Abram, Dr. R. A. Fleming, Dr. H. Morley Fletcher, Dr. W. T. Ritchie. Hon. Secretaries: Dr. George Graham, Dr. G. D. Mathewson.

Provisional Programme.—July 20th.—Discussion: The Results of Insulin Therapy in Diabetes Mellitus. To be opened by Prof. Hugh MacLean; followed by Dr. George Graham and Prof. D. Murray Lyon.

July 21st.—Discussion: The Treatment of Acute Lobar Pneumonia. To be opened by Prof. John Hay; followed by Dr. H. Morley Fletcher and Dr. A. Fergus Hewat.

July 22nd.—Discussion: The Pathology and Treatment of Pernicious Anæmia. To be opened by Prof. G. Lovell Gulland; followed by Dr. A. F. Hurst.

Surgery.

President: Prof. D. P. D. Wilkie. Vice-Presidents: J. W. Dowden, Mr. F. J. Steward, Mr. J. W. Struthers, Mr. H. Wade, Mr. A. M. Webber. Hon. Secretaries: Mr. J. M. Graham, Mr. E. C. Hughes.

Provisional Programme.—July 20th.—Discussion: Tuberculosis of the Kidney. To be opened by Sir John Thomson-Walker; followed by Dr. A. Rollier (Leysin), Prof. A. Fullerton, Mr. H. Wade, Mr. J. F. Dobson, and Mr. B. J. Ward.

Paper: Mr. W. Rankin: The Treatment of Acute Osteomyelitis by Primary Diaphysectomy.

July 21st.—Discussion: The Place of Surgery in the Treatment of Toxic Goitre. To be opened by Mr. T. P. Dunhill; followed by Prof. G. R. Murray, Mr. C. Thurstan Holland, Prof. R. E. Kelly, and Dr. John Eason.

Paper: Sir Almroth E. Wright: The Rational Treatment of Infected Wounds.

July 22nd.—Discussion: Chronic Appendicitis. To be opened by Mr. Wilfred Trotter; followed by Mr. J. W. Dowden, Mr. Victor Bonney, Mr. A. J. Walton, and Mr. H. J. Paterson.

Paper: Mr. A. MacLennan: Burns.

Obstetrics and Gynæcology.

President: Dr. James Haig Ferguson. Vice-Presidents: Mr. T. Watts Eden, Dr. Gibbon FitzGibbon, Dr. W. Fordyce, Prof. R. W. Johnstone, Mrs. E. Vaughan-Sawyer. Hon. Secretaries: Dr. Daniel Dougal, Dr W. F. T. Haultain.

Provisional Programme.—July 20th.—Discussion: The Relation of Pregnancy to General Diseases. To be opened by Prof. J. M. Munro Kerr (Cardiac Diseases), Dr. E. Rist, of Paris (Tuberculosis), and Prof. F. J. Browne (Venereal Diseases); followed by Dr. G. FitzGibbon and Dr. Mary H. J. MacNicol.

July 21st.—Discussion: The Hygiene of Menstruation in Adolescents. To be opened by Prof. R. W. Johnstone, Dr. J. H. P. Paton, and Mrs. A. E. Sanderson Clow; followed by Mrs. E. Vaughan-Sawyer.

July 22nd.—Papers: Dr. F. A. E. Crew: The Effect upon the Sex Ratio of Conception Early and Late in Relation to the Œstrous Cycle of the Rat. Dr. D. A. Miller: Failed Forceps Cases. Dr. D. Dougal: The Clinical Features of Ectopic Pregnancy. Dr. B. Solomons: Some Points in the Technique of the Low Segment Cæsarean Operation. Prof. W. Fletcher Shaw: Uterine Fibroids after the Menopause.

Pathology and Bacteriology.

President: Prof. J. Lorrain Smith, F.R.S. Vice-Presidents: Dr. W. R. Logan, Prof. T. J. Mackie, Dr. H. D. Wright. Hon. Secretaries: Dr. James Davidson, Dr. H. J. Parish.

Provisional Programme.—July 20th.—Discussion: Growth in its Pathological Relations. To be opened by Dr. A. Leitch; followed by Prof. R. Muir, Dr. G. W. de P. Nicholson, Prof. J. Shaw Dunn, Prof. M. J. Stewart, and Prof. E. H. Kettle.

July 21st.—(Joint meeting with Section of Comparative Medicine). Discussion: Immunity. To be opened by Dr. R. A. O'Brien and Prof. C. H. Browning; followed by

Prof. R. Muir, Dr. H. D. Wright, Colonel W. F. Harvey, and Prof. T. J. Mackie.

July 22nd.—(Joint meeting with Section of Comparative Medicine). Discussion: Aspects and Problems of Comparative Medicine. To be opened by Prof. Basil Buxton; followed by Major G. W. Dunkin, Mr. W. H. Andrews, Dr. F. A. E. Crew, Dr. H. H. Scott, Prof. R. T. Leiper, Mr. J. W. Brittlebank, Mr. A. Goften, Mr. T. W. M. Cameron, and Mr. J. McAllan.

Therapeutics and Pharmacology.

President: Prof. J. A. Gunn. Vice-Presidents: Prof. A. J. Clark, Prof. F. R. Fraser, Dr. E. P. Poulton. Hon. Secretaries: Dr. E. G. Holmes, Dr. C. G. Lambie.

Provisional Programme.—July 20th.—10 A.M., Discussion: Clinical Methods of Administration and Therapeutic Uses of Oxygen. To be opened by Dr. E. P. Poulton; followed by Dr. H. Whitridge Davies and Dr. W. T. Ritchie. 12 noon, Paper: Prof. J. A. Gunn: Expectorants.

July 21st.—Discussion: The Therapeutic Uses of Calcium Salts. To be opened by Prof. F. R. Fraser; followed by Dr. L. G. Parsons Mr. C. P. Stewart (Biochemical Aspect), Dr. G. H. Percival (Pharmacological and Therapeutic Aspect), Prof. L. Blum (Strasbourg), Dr. G. C. Linder (Tetany), and Dr. N. F. C. Burgess.

July 22nd.—Discussion: The Action and Uses of Ovarian Extracts. To be opened by Prof. W. E. Dixon; followed by Dr. K. A. Coward (Standardisation), Mr. A. S. Parkes (Physiological), Dr. W. R. Addis (Clinical), and Prof. J. M. Munro Kerr (Gynæcological).

Diseases of Children.

President: Prof. John Fraser. Vice-Presidents: Dr. H. C. Cameron, Dr. A. D. Fordyce, Dr. Charles McNeil. Hon. Secs: Dr. Helen M. M. Mackay, Dr. Lewis Thatcher.

Provisional Programme.—July 20th.—Discussion: Acute Pneumonia in Early Childhood. To be opened by Dr. Charles McNeil and Dr. Agnes R. Macgregor conjointly; followed by Prof. Leonard Findlay, Dr. J. H. Thursfield, Colonel W. Glen Liston, and Dr. N. S. Carmichael. Afternoon, Demonstration: Dr. W. A. Alexander: Acute Pulmonary Conditions in Childhood, illustrated by specimens, X ray prints, large sections, and microscopic preparations Surgical demonstration at Royal Edinburgh Hospital for Sick Children.

July 21st.—Discussion: Acute Intestinal Obstruction in Infancy and Childhood. To be opened by Mr. Alex. MacLennan; followed by Mr. L. E. Barrington-Ward, Miss G. M. A. Herzfeld, Mr. F. C. Pybus, and Mr. Norman M. Dott. Afternoon, Demonstration of Medical Cases at Royal Edinburgh Hospital for Sick Children.

July 22nd.—Discussion: Therapeutic Modification of the Diet in Infancy: What can be Achieved by it? To be opened by Dr. H. C. Cameron; followed by Dr. A. D. Fordyce, Dr. G. B. Fleming, and Dr. Lewis Thatcher.

Mental Diseases.

President: Prof. G. M. Robertson. Vice-Presidents: Dr. Bernard Hart, Dr. John Keay, Colonel J. R. Lord, Dr. H. C. Marr. Hon. Secretaries: Dr. R. D. Gillespie, Dr. W. M. McAlister.

Provisional Programme.—July 20th.—Discussion: Chronic Sepsis as a Cause of Mental Disorder. To be opened by Dr. William Hunter; followed by Sir Berkeley Moynihan, Dr. D. Chalmers Watson, Dr. E. Goodall, Dr. C. H. Bond, and Dr. W. F. Menzies.

July 21st.—(Joint meeting with the Section of Neurology.) Discussion: Epidemic Encephalitis. To be opened by Dr. Ivy Mackenzie (Epidemiological Considerations), Dr. J. G. Greenfield (Pathology), Dr. R. M. Marshall (Mental Aspects), and Dr. G. Riddoch (Chronic Encephalitis); followed by Dr. E. Mapother, Dr. H. Devine, Dr. W. J. Adie, and Dr. W. A. Potts.

July 22nd.—Discussion: Points in the Lunacy Commission (England) Report—(*a*) Are the existing safeguards against wrongful detention adequate? (*b*) How far is judicial intervention necessary in the process of certification? (*c*) What additional facilities are required for early treatment? To be opened by Prof. G. M. Robertson.

The following Sections will meet on two days:—

Neurology.

President: Prof. Edwin Bramwell. Vice-Presidents: Dr. A. Ninian Bruce, Dr. J. G. Greenfield, Dr. F. M. R. Walshe. Hon. Secretaries: Dr. E. A. Carmichael, Mr. N. M. Dott.

Provisional Programme.—July 20th.—Discussion: The Tics and Allied Conditions. To be opened by Dr. S. A. Kinnier Wilson; followed by Prof. Guillain (Paris), Dr. A. F. Hurst, Dr. A. Stanley Barnes, Dr. T. Grainger Stewart, Dr. D. E. Core, Dr. R. G. Gordon, and Dr. W. J. Adie.

July 21st.—Joint meeting with Section of Mental Diseases. (See above.)

Ophthalmology.

President: Mr. A. H. H. Sinclair. Vice-Presidents: Mr. Wilfred Allport, Sir Arnold Lawson, Mr. H. M. Traquair. Hon. Secretaries: Mr. R. E. Bickerton, Mr. E. H. Cameron.

Provisional Programme.—July 20th.—Discussion: Optic Neuritis. To be opened by Dr. J. V. Paterson; followed by Dr. Henning Rönne (Copenhagen) and Dr. A. J. Ballantyne.

July 21st.—Papers: Miss I. C. Mann: Some Aspects of the Comparative Development of the Retina. Sir W. T. Lister: Some Points in Connexion with Detachment of the Retina. Mr. W. Clark Souter: Spontaneous Reattachment of Detached Retina. Sir Arnold Lawson: Value of Antiseptics in Modern Ophthalmic Surgery. Mr. F. Holt Diggle: Relationship between Lacrymal Obstruction and Nasal Disease. Mr. H. M. Traquair: Incidence of Tobacco Amblyopia in Edinburgh and District. Mr. A. H. H. Sinclair: Remarks on Intracapsular Extraction of Cataract, and Demonstration.

Laryngology and Otology.

President: Mr. A. Logan Turner. Vice-Presidents: Mr. J. S. Fraser, Mr. W. M. Mollison, Dr. Donald R. Paterson. Hon. Secretaries: Mr. A. R. Dingley, Mr. W. T. Gardiner.

Provisional Programme.—July 20th.—Discussion: Neurological and Mechanical Factors underlying Immobility of the Vocal Cords; their Diagnosis, Prognosis, and Principles of Treatment. It will be opened by Dr. A. Brown Kelly (Neurological Aspect) and Mr. Herbert Tilley (Mechanical Side).

July 21st.—Discussion: Otosclerosis. To be opened by Mr. G. J. Jenkins; followed by Prof. F. R. Nager (Zurich) and Dr. A. A. Gray.

Papers: Mr. Norman Patterson: Some Diseases Affecting the Thyro-glossal Tract. Dr. Stephen Young: Radiography in Mastoid Disease.

Preventive Medicine.

President: Prof. P. S. Lelean. Vice-Presidents: Dr. G. F. Buchan, Miss Harriette Chick, Dr. A. M. Hewat, Dr. G. R. Leighton. Hon. Secretaries: Dr. W. T. Benson, Dr. C. W. Hutt.

Provisional Programme.—July 20th.—Discussion: Should all Public Health Administration—Municipal, School, Factory, &c.—be Concentrated under a Single Department, and the Immediate Control in Each Executive Area be Vested in a Single Individual? To be opened by Dr. A. S. M. MacGregor; followed by Dr. F. E. Wynne, Dr. J. H. Meikle, Prof. E. L. Collis, and Dr. E. W. Hope.

July 21st.—10 A.M., Discussion: What Duties has the State in Relation to the Nation's Food-supply regarding Research, Instruction of Parents, Maintenance of Supplies, and Cooking Facilities? To be opened by Prof. E. Mellanby, followed by Dr. Eustace Hill, Dr. J. P. Kinloch, and Mr. G. Benzie. 12 noon, Paper: Pulmonary Asbestosis, by Dr. W. E. Cooke, Sir Thomas Oliver, and Prof. Stuart McDonald.

Physiology and Biochemistry.

President: Prof. Sir Edward Sharpey-Schafer, F.R.S. Vice-Presidents: Prof. P. T. Herring, Prof. D. Murray Lyon, Prof. John Mellanby, Prof. T. H. Milroy, Prof. John Tait (Montreal). Hon. Secretaries: Prof. B. A. McSwiney, Miss Laurie Walker.

Provisional Programme.—July 21st.—Morning session. Discussion: The Structure and Function of the Spleen. To be opened by Prof. John Tait; followed by Prof. J. Barcroft, F.R.S., and others. Papers: Prof. P. T. Herring: The Pineal Gland. Prof. D. Murray Lyon and Mr. W. Robson: Cystinuria. Dr. J. Crighton Bramwell: Form of the Pulse Wave. Prof. J. A. MacWilliam and Prof. G. Spencer Melvin: Optimal Rhythm in the Mammalian Heart and the Action of the Cardiac Nerves. Dr. C. Reid: The Mechanism of Voluntary Muscular Fatigue. Prof. H. E. Roaf: The Quantitative Measurement of Defects in Colour Vision. Prof. B. A. McSwiney: Structure and Movements of the Cardia. Afternoon session. Discussion: The Influence of Internal Secretions on Sex Characters. To be opened by Dr. F. A. E. Crew; followed by Mr. A. S. Parkes, Prof. E. E. Glynn, and others.

July 22nd.—Morning session. Discussion: Chemical Changes accompanying Muscular Activity. To be opened by Prof. T. H. Milroy; followed by Sir F. Gowland Hopkins, Prof. O. Meyerhof (Berlin), and Prof. G. Embden (Frankfürt). Papers: Prof. J. Mellanby: Bile as the Alimentary Stimulus for Pancreatic Secretion. Prof. J. Tait: Natural Arrest of Hæmorrhage from a Wound (illustrated with lantern slides). Dr. H. Whitridge Davies and Prof. B. A. McSwiney: Circulation Rate. Prof. R. J. S. McDowall: Physiological Considerations in High Blood Pressure. Dr. C. R. Harington: The Constitution of Thyroxin.

Afternoon session. Discussion: Hæmolysis. To be opened by Dr. E. H. Ponder; followed by Prof. J. Mellanby, Dr. R. Brinkman (Groningen), and others.

Comparative Medicine.

President: Principal O. Charnock Bradley. Vice-Presidents: Prof. J. B. Buxton, Dr. F. A. E. Crew, Major G. W. Dunkin. Hon. Secretaries: Mr. T. W. M. Cameron, Mr. J. Russell Grieg.

Provisional Programme.—July 21st and 22nd.—Joint meeting with Section of Pathology and Bacteriology. (See above.)

The following Sections will meet on one day:—

Dermatology.

President: Dr. R. Cranston Low. Vice-Presidents: Dr. W. Herbert Brown, Dr. H. D. Haldin-Davis. Hon. Secretaries: Dr. Robert Aitken, Dr. F. D. Howitt.

Provisional Programme.—July 21st.—Discussion: The Uses and Limitations of Ultra-Violet Radiations in Dermatology. To be opened by Dr. S. E. Dore.

Papers: Dr. H. C. G. Semon: The Value of Krysolgan in Lupus Erythematosus. Dr. G. B. Dowling: The Treatment of Tinea Capitis with Thallium Acetate.

Tropical Diseases.

President: Dr. Andrew Balfour. Vice-Presidents: Lieut.-Colonel E. D. W. Greig, Lieut.-Colonel W. F. Harvey, Lieut.-Colonel W. Glen Liston, Lieut.-Colonel W. P. MacArthur. Hon. Secretaries: Dr. A. R. D. Adams, Dr. J. F. C. Haslam.

Provisional Programme.—July 20th.—10 A.M. Discussions: (1) Amœbic Dysentery. To be opened by Prof. Warrington Yorke; followed by Dr. P. H. Manson-Bahr (Treatment and Epidiascopic Illustrations of Sigmoidoscope Appearances), Dr. J. Gordon Thomson, and Dr. N. Swellengrebel (Amsterdam). 11 A.M. (2) Some Problems of Malaria Prophylaxis. To be opened by Lieut.-Colonel S. P. James; followed by Sir William Prout, Lieut.-Colonel E. D. W. Greig, Dr. L. W. Hackett (Rome), and Dr. N. Swellengrebel.

Forensic Medicine.

President: Prof. H. Harvey Littlejohn. Vice-Presidents: Earl Russell, Sir Walter Schroder, Prof. Sydney A. Smith (Cairo). Hon. Secretaries: Dr. D. J. A. Kerr, Prof. J. E. W. McFall.

Provisional Programme.—July 21st.—Discussions: (1) Alcohol and the Motorist. To be opened by Dr. G. Carter. (2) The Teaching of Forensic Medicine. To be opened by Prof. J. Glaister.

Tuberculosis.

President: Dr. S. Vere Pearson. Vice-Presidents: Dr. William Brand, Dr. A. de W. Snowden, Dr. Ernest Watt. Hon. Secretaries: Dr. J. C. Simpson, Dr. R. R. Trail.

Provisional Programme.—July 22nd.—10 A.M. Discussions: (1) Radiology and Diagnosis of Intrathoracic Tuberculosis from the Point of View of Specialist and Practitioner. To be opened by Mr. H. Morriston Davies; followed by Dr. E. Rist (Paris), Dr. J. Logan Stewart, and Dr. J. M. Woodburn Morison. (2) Pathology of the Tuberculosis of Childhood and its Bearing on Clinical Work. To be opened by Prof. Eugene L. Opie (Washington University); followed by Dr. R. G. Canti and Dr. P. F. Armand-Delille (Paris). (3) Interrelation of Physician and Surgeon in Regard to Non-pulmonary Tuberculosis. To be opened by Dr. D. A. Powell and Prof. John Fraser; followed by Dr. G. H. Girdlestone.

Venereal Diseases.

President: Mr. David Lees. Vice-Presidents: Dr. Archibald Cambell, Mrs. Margaret Rorke, Mr. R. Stopford. Hon. Secretaries: Dr. F. C. Doble, Miss M. Forbes Liston.

Provisional Programme.—July 22nd.—Morning session. Discussion: The Value of Routine Examination of the Cerebro-spinal Fluid with regard to (*a*) More Accurate Knowledge, (*b*) Prognosis, (*c*) Treatment. To be opened by Mr. C. H. Mills. Clinical cases illustrating types of neurosyphilis will also be shown. Afternoon session. Discussions: (1) The Employment of Certain Constituents of the Gonococcus in Treatment and of other Constituents in Tests of Cure. To be opened by Major E. C. Lambkin. (2) The Place of Bismuth in the Treatment of Syphilis, by Mr. David Lees.

Radiology.

President: Dr. J. M. Woodburn Morison. Vice-Presidents: Mr. M. R. J. Hayes, Dr. R. E. Roberts. Hon. Secretaries: Dr. W. Crichton Fothergill, Dr. John Muir.

Provisional Programme.—July 20th.—Discussions: (1) 10 A.M. X Rays in the Diagnosis of Intrathoracic Growth. To be opened by Dr. Stanley Melville; followed by Mr. C. Thurstan Holland, Dr. A. Fergus Hewat, and Dr. D. Campbell Suttie. (2) 11.30 A.M. X Rays and Radium in the Treatment of Carcinoma of the Breast. To be opened by Dr. N. S. Finzi; followed by Dr. J. H. D. Webster, Dr. A. E. Barclay, Mr. M. R. J. Hayes, and Dr. R. Knox.

History of Medicine.

President: Dr. John D. Comrie. Vice-Presidents: Dr. Arnold Chaplin, Dr. Charles Singer, Dr. R. W. Innes Smith, Mr. Henry S. Wellcome. Hon. Secretaries: Dr. W. J. Dilling, Dr. A. Cairns White.

Provisional Programme.—July 22nd.—10 A.M. Discussion: The Historic Evolution of Disease. To be opened by Sir Humphry Rolleston; followed by Prof. G. Elliot Smith (Ancient Prototypes of Modern Disease), Dr. G. M. Cullen (World Epidemics and their Relationship in Cause and Effect to Social Conditions), and Miss M. C. Buer (The Effect of Early Industrialism upon the Health of the Community).

Papers: 12.15 P.M. Prof. A. J. Clark: The Historical Aspect of Quackery. 12.30 P.M. Prof. W. J. Dilling: The Methods of Introduction of Drugs.

Medical Sociology.

President: Dr. F. N. Kay Menzies. Vice-Presidents: Dr. L. D. Cruickshank, Sir Henry S. Keith, Lord Mackenzie, Sir Arthur Stanley, Sir Norman Walker. Hon. Secretaries: Dr. T. Yule Finlay, Mr. B. S. Simmonds.

Provisional Programme.—July 22nd.—Discussion: The Future Relationship of Municipalities to the Voluntary Hospitals of this Country. To be opened by Mr. H. L. Eason and Mr. M. A. Reynard; followed by Sir Henry Keith, Sir Arthur Stanley, and others.

THE PRACTICE OF DENTISTRY IN THE IRISH FREE STATE.

(FROM OUR DUBLIN CORRESPONDENT.)

THE Minister for Industry and Commerce has introduced to the new Dail the same Bill to provide for the registration of dentists as was introduced to the last Dail in May, though it was not then proceeded with. It is likely that the several stages of the Bill will be taken rapidly, as the Government hopes for an early adjournment of the Oireachtas. The Bill is framed in order to validate an agreement between the Governments of Great Britain, of the Irish Free State, and of Northern Ireland. It provides for the establishment of a Dental Board which is to control a Register of Dentists. All persons at present on the General Dentists' Register and all persons who in the future are in possession of a degree or licence in dental surgery, granted by a university or college in the Irish Free State having power to grant the same, are entitled to be registered. The Board is empowered to investigate complaints of infamous or disgraceful conduct in a professional respect, and if in its opinion the complaints are justified, to send a report to the Medical Council. The Medical Council, on consideration of such report and after giving an opportunity of being heard to the person affected, may direct the Board to erase the name of such person from the Register. All such decisions are subject to appeal to the High Court. The supervision of education is entrusted, not to the Dental Board, but to the Medical Council. The scheme as a whole seems to be satisfactory, but two sections call for criticism. In Section 3 (3), dealing with the constitution of the Dental Board, it is provided that one member is to be elected by persons registered under Section 3 of the Dentists Act, 1921, while four are to be elected by those who are registered otherwise than under that section. It is a matter of question whether it is wise to perpetuate this grouping of the members of the dental profession. But it is clear that, if this separate representation is to be set up, it should be for a time only. The persons registered under Section 3 of the Act of 1921 are a vanishing quantity, but, as the Bill stands, as long as any of them remain they will be entitled to separate representation on the Dental Board. A period of 10 or 15 years would be adequate for this special provision, if indeed the provision is necessary at all. The other point for criticism is more important to the medical profession. Section 41 proposes to render it a punishable offence for any person, who is not registered, to practise dentistry. This is subject

to the following qualifications as regards medical men :—

Subsection (2). The provisions of the foregoing subsection shall not operate to prohibit—

(*a*) the practice of dentistry or dental surgery by a registered medical practitioner who is at the date of the passing of this Act a registered medical practitioner, or

(*b*) the performance of any surgical operation in connexion with the tissues of the mouth or jaws, or the giving of any dental treatment, advice or attendance in urgent dental cases by any registered medical practitioner.

It will be seen that the Bill proposes, in effect, to make dentistry in future a separate profession instead of regarding it, as hitherto, as a branch of surgery. It may be assumed that the universities and medical corporations will make representations to prevent the limitation proposed to be put to the functions of the medical profession. As the section stands, it appears that it depends on the interpretation of the significance of a comma whether in the future a surgeon may operate on the mouth or not, except in case of urgency.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Certified Milk.

THE report of the Scottish Board of Health, noticed in your columns last week, shows in detail the progress of the movement towards the popularisation of a higher grade milk. The response to official initiative in this campaign was at first given only by a few enthusiastic pioneers in production. Now the commercial demand is stiffening everywhere, and is demonstrated in the efforts of certain tradesmen to get the "Grade A" price for a lower grade article. The production of higher grade milk is going through the usual phases: from not needed, not wanted, not practicable, not a "paying proposition," to wanted, practicable, and paying. It is now a common experience of the child welfare centres to find even the less well-off mothers inquiring as to Certified and Grade A milk for their babies, who must have the best. The producers are now active on a large scale. At a crowded meeting of producers of Certified milk and Grade A (tuberculin-tested) milk, held in Glasgow recently, it was decided to form a society to promote the sale of such milk in Scotland. The society will be called Scottish Certified and Grade A (T.T.) Milk Producers, Ltd., and a whole-time secretary will be appointed. The expense of purveying these higher grades of milk is still out of all proportion to the small demand, and the object of the new society is to stimulate and create a better market. In some cases, where herds had been cleared of tubercle, milk of the highest grades had to be converted into cheese or fed to calves and pigs. This is not creditable to our social sense. But the omens are favourable. Paisley Corporation has contracted for Certified milk for their hospitals. Glasgow Corporation has contracted for Grade A (T.T.) milk, and it is said that the Edinburgh hospitals and infirmaries are moving in the same direction. When the pressure of the new Dairies Act begins to be felt, the whole movement will show a substantial acceleration.

The Royal Edinburgh Hospital for Sick Children.

The annual report shows that this hospital is maintaining its place worthily among the first-class Scottish hospitals. Indoor cases treated in 1926 were: medical, 1593; surgical, 1248; against 1642 and 1213 in 1925. The average residence was 17 days, and 1106 operations were performed. Other figures given are: out-patients (new), medical, 2361, with 6479 re-attendances; surgical, 3263, with 13,452 re-attendances; vaccinations, 49; total, 25,604, against 25,958 in 1925. Artificial sunlight is in active use, and is available for out- as well as for in-patients. The report says: "The benefit in selected cases is unquestionable, and there was no difficulty in getting parents to bring their children regularly for the considerable number of exposures that were necessary." The tuberculosis cases admitted to the wards "showed no decrease from the average for the years immediately preceding the war. The total of 276 included 97 cases of tuberculosis of cervical glands, 83 of abdominal tuberculosis, and 63 of tuberculosis of bones and joints." It is stated to be now generally recognised "that a very considerable proportion of cases of tuberculosis in children is due to the drinking of infected milk." The work of Stiles, Fraser, and Mitchell in this field is classical. It is disappointing to find that the cases are still so numerous, after some 20 years and more of keen effort. It is, however, to be remembered that the tuberculosis cases do not all hail from the city of Edinburgh. Of rheumatism there were 76 cases, and it is pointed out that the institutional treatment in Scotland is insufficient. The hospital is making a strong appeal for funds, which in view of the good work being done should meet with a generous response.

The Royal (Dick) Veterinary College.

Speaking at the annual prize distribution of the Royal (Dick) Veterinary College Dr. T. G. Nasmyth put in a plea for coöperation between veterinary and medical practitioner. Each would be able to tell or suggest something of interest and utility in the domain of comparative pathology. Principal O. Charnock Bradley expressed optimism as to the prospects of the veterinary profession, pointing out that appointments both at home and abroad were getting more plentiful. Lord Provost Stevenson showed how intimate the corporation and the college had always been, and how closely the work of veterinary surgeons bore on the public health. In its recently established meat regulations and its dairy regulations the Scottish Board of Health has done a great deal to make the veterinary surgeon an effective officer in the control of the meat and milk trade. The Empire Marketing Board, in the development of its scientific policy, is opening up new fields for the highest quality of veterinary men. The fact that the Highland and Agricultural Society holds its show this year in Edinburgh is of interest to those connected with the College. The society presents each year 11 silver medals to the College, and, at the very foundation of the College, gave material assistance to the founder, who would hardly recognise his modest beginnings in the large and highly equipped College of to-day.

PARIS.

(FROM OUR OWN CORRESPONDENTS.)

Artificial Pneumothorax in Childhood.

SINCE 1922 Prof. Armand-Delille, of Paris, has produced artificial pneumothorax in more than 300 young children suffering from pulmonary tuberculosis. At first he confined the treatment to one side only, but of late he has tried simultaneous bilateral pneumothorax in several cases. He claims a large number of cures and concludes that artificial pneumothorax is at present the only means at our command of arresting the course of a disease which almost always proves fatal once ulcerative lesions have developed.

Osiris Prize to Dr. Charles Nicolle.

The special committee of the Institut de France, charged with the award of the Osiris prize (100,000 francs) has announced its intention to propose the name of Dr. Charles Nicolle for acceptance at the meeting of the five constituent Academies of the Institut, which will he held this month. Dr. Nicolle, who directs the Pasteur Institute at Tunis, will thus be rewarded for the work on typhus and recurrent fevers which led to effective control of these diseases during the late war.

Small-pox in Paris.

During the last few months several hundred cases of small-pox, arising it is believed from infection

imported from Northern Africa, have appeared in Paris, 214 cases having been treated at the Claude Bernard hospital alone. Twice as many women as men have taken the infection: the case mortality has averaged 33 per cent., being higher in young children. Compulsory vaccination of everyone leaving North Africa for France is being urged.

Results obtained with a new autolysate for the treatment of cancer, devised by J. Thomas, have been presented to the Académie des Sciences. In three cases, now dating from two, three, and 12 years respectively, the autolysate has appeared to possess curative value.

The memory of Pravaz, deviser of the hypodermic syringe which bears his name on the continent, is being honoured by the erection of a monument in the town of Pont-de-Beauvoisin, in Savoy, and by giving his name to a street in Lyons.

A course in broncho-œsophagoscopy is to be held at the Lariboisière Hospital and elsewhere in Paris from July 11th to 30th, by Prof. Chevalier Jackson with the coöperation of Prof. Sébileau. It will include practical work for six applicants only, and particulars may be had from the Doyen of the Faculty of Medicine, 12, rue de l'École de Médecine, Paris.

The Director of the Hôpital Maritime de Berck-Plage (Pas-de-Calais) announces that a course in surgical tuberculosis and the elements of practical orthopædics will be given there from July 18th to 30th. Dr. Delahaye of the Hôpital will send the programme on application.

The twentieth Voyage d'Études Médicales will be held from Sept. 1st to 10th, under the scientific direction of Prof. Paul Carnot, when the spas of the Eastern Pyrenees will be visited. The inclusive fee will be 1150 francs for British participants. Particulars may be had from Mr. René Gayet, 54, rue du Faubourg St. Honoré, Paris, or in London, Mme. Juppé-Blaise, Federation of the Health Resorts of France, 19A, Tavistock-square, W.C. 1.

CHINA.

(FROM OUR OWN CORRESPONDENT.)

Prostitution in Canton.

EFFORTS are being made by the Canton Government to make legalised prostitution a thing of the past. The Governor of Kwangsi Province has promulgated an order dividing the women of the underworld into three classes. The mistresses of first- and second-class houses will be paid $60 and $30 per girl respectively as compensation for the loss they will sustain in closing their houses. A Government home has been provided for the unfortunate women who will be confined there until such time as they may enter into marriage contracts, when they will be released. This home is on similar lines to one in Chinatown, San Francisco, California, where the Federal authorities send most of the Chinese girls who are found earning their livelihood as prostitutes.

Opium Smoking.

Prominent citizens of Canton are endeavouring to get the Governor to take an interest in the suppression of opium smoking. By far the greater part of this narcotic consumed in the city comes from the province of Kwangsi, of which Canton is the capital; imported opium is much higher in price than the native-grown product. Every day 10,000 ounces of opium are sold in Canton and it is estimated that one out of every ten adult males in Canton is a smoker to a greater or lesser extent. There does not seem, however, to be the slightest chance of General S. H. Wong, the Governor, being induced even to curtail the opium traffic at this time, as the principal source of Government's income in Kwangsi is derived therefrom. Were this revenue lost it would be impossible to support the army, and in these times of civil warfare military needs come first, even at the cost of the people's welfare.

Correspondence.

"Audi alteram partem."

THE CERTIFICATION OF LUNACY.

To the Editor of THE LANCET.

SIR,—The position of the practitioner called upon to give a certificate of unsoundness of mind has become more difficult than ever. The usual procedure for bringing a patient under care and treatment has been, in private practice, by "Reception Order on Petition," that is by an Order of a judicial authority made on the petition of the relatives of the patient, the practitioner giving a certificate on the understanding that if he acts in good faith and with reasonable care he will not be liable to civil or criminal proceedings. It has now unhappily become impossible for him to have any assurance that good faith and reasonable care will secure him from legal proceedings and an adverse verdict. In any given case, even though the practitioner's good faith and reasonable care are admitted, if the jury is of opinion that a person at the time of certification was not in such a state of mental or nervous disorder as to require detention in a mental hospital, the practitioner is liable to a verdict against him, to damages and costs. In short, the jury is vested with diagnostic powers.

But beyond that emerges the curious conclusion that a doctor owes to his patient the duty of reasonable care, but that nothing short of a jury can ultimately determine whether he should take precautions to advise that the patient should be placed under care and treatment or be left without proper care and treatment. Beyond the diagnostic power conferred, the jury becomes also vested with therapeutic skill.

The practitioner must also realise that though the jury has become invested with so many of the fruits of prolonged medical education and hard-won experience, the judicial authority in the case of "Reception Orders on Petition" has virtually lost the legal powers which are nominally his. The Order which he makes is in no real sense an order at all, but is a piece of perfunctory and superfluous pantomime. It is the unhappy practitioner, who is neither legal nor judicial, who in fact is the person to make the order; at any rate the entire responsibility is his. He has to take the consequences while the judicial authority stands aside.

What then is to be done? Until further judicial decision or legislation, necessarily a long time hence, the practitioner must continue to take most serious risks, his action being ultimately determined by his sense of duty to his patients and to the public. The path of "Reception Orders on Petition," as laid down in the Lunacy Act, 1890, Sec. 4 et seq. is a most dangerous one for him. There are, however, other modes of procedure available. There is that by Inquisition, a very distinctly judicial proceeding, in which it is to be hoped that the medical witness receives the protection accorded to any other witness in a court of law. Inquisition is, however, slow, cumbersome, and expensive. There are also procedures by Summary Reception Orders, in which, as it would appear to a non-legal reader of the Act, the onus of causing an alleged lunatic to be visited by medical practitioners is divided between constables, relieving officers, overseers, and justices being judicial authorities under the Act (Sec. 13 (1) (2)). Proceedings under these Sections do not remove the dangers attending certification, but on the face of the Act it would appear to distribute responsibility more equally, and more directly to implicate the judicial authority. I venture to suggest the more extended use of summary Reception Orders, and at least think it would be desirable that the method, as applied to those cases in which proceedings by Reception Order on Petition have in the past been usual, should be ventilated and criticised.—I am, Sir, yours faithfully,

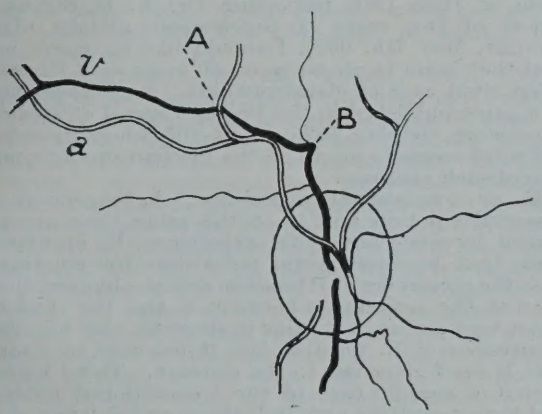
Harley-street, W., July 5th, E. D. MACNAMARA.

"RETINAL PETECHIASIS."

To the Editor of THE LANCET.

SIR,—Dr. Moreland McCrea's claim, under the above heading in your issue of June 18th, to have discovered a form of retinal hæmorrhage "not hitherto recognised," cannot be allowed as an entity. The condition is fully recognised and is generally due to venous thrombosis, of which the drawings he gives are a marked example. His further statement, that a number of patients are condemned to blindness as a "result of this incorrect diagnosis," also requires considerable qualification. Partial thrombosis tends to recovery, and the septic origin of thrombosis is also fully recognised by many of us.

If Dr. McCrea's drawings be examined, it will be seen that the obstruction to the superior retinal vein has occurred at the two points indicated in my diagram. In his drawing No. 1 the vein is blocked at A by the transverse artery crossing it, and also at B, where the vein is kinked on itself. Between A and B the vein can hardly be traced. In No. 2 the block has yielded at B though still compressed at A. In No. 3 the vein seen at A is still compressed by the artery, diminished in size, and distorted from its course—a condition well known as liable to cause



thrombosis—and a recurrence may be expected. The "petechiasis" is the result of the blocking of the vein. Where the thrombosis is mild or partial and limited to a branch of the retinal vein, it gives rise to "petechiasis" and tends to recover spontaneously, or as the result of treatment. Where it is complete, or affects the central vein, it gives rise to gross changes and large hæmorrhages, and recovery is doubtful with or without treatment.

My criticism of Dr. McCrea's case in no way detracts from the value of his paper in insisting on the septic origin of thrombosis as a cause of "retinal petechiasis." The more common cause of partial venous thrombosis is taken to be arterio-sclerosis, which again may be septic or toxic in origin. With this is associated an anatomical factor. Thrombosis takes place where the vein is crossed by an artery. In Dr. McCrea's case the branch is abnormally large and has compressed and displaced the vein, hence the thrombosis. It is a curious fact that the right superior temporal vein is the vessel most commonly affected by thrombosis, of which it will be noted Dr. McCrea's case is another example. It is the thickening and hardening of the arterial wall in arterio-sclerosis that causes the obstruction to the venous circulation when it crosses the vein.

A number of drawings illustrating the condition are on view at Hamblin's Ophthalmic Drawing Department, 15, Wigmore-street, W. 1.

I am, Sir, yours faithfully,

RAYNER D. BATTEN.

Harley-street, W., June 28th, 1927.

DIPHTHERIA IN LONDON.

To the Editor of THE LANCET.

SIR,—In reference to Mr. Maben's letter, appearing in your last week's issue, it should be noted that his figures for diphtheria incidence and mortality for eight large towns deal only with a period of 15 *months* ending March, 1927, whereas the statement in my report,* which Mr. Maben should consult, and which emphasises London as showing the highest incidence and almost the highest mortality among other large towns in Great Britain and capitals in Europe, if not the world, is based on the averages of 15 *years* ending 1925 for the towns in Great Britain, the latest date for which figures were available at the time the report was drawn up. In the tables given on pp. 21 and 22 of the report it will be seen that, among the 13 large cities, London heads the attack rates with 289 per 100,000, Portsmouth coming next with 275, and Newcastle lowest with only 96. In the death-rates, Portsmouth heads the list with 18·1, London fourth with 16·8, and Sheffield lowest with only 5·8 per 100,000.

As regards continental towns, Mr. Maben quotes only a single quarter up to March, 1927. In the report on p. 8 is given a list of the diphtheria death-rates for 1924 in 22 European capitals, headed by Edinburgh with 168, London coming third with 123, and Bucharest last with only 12 per 100,000. The statement in the report's conclusion therefore stands without modification. As regards the year 1926, for which figures in Great Britain are now available, London occupied second place on the list with an attack rate of 296, Portsmouth coming first with 404, Birmingham third, 242, Glasgow fourth, 235, West Ham fifth, 219, Sheffield sixth, 202, Edinburgh seventh, 179, and Newcastle lowest with only 72. In the mortality list London's position, seventh, with 11·9 per 100,000, is lower than in the previous 15 years' average when fourth with 16·8, but with the exception of Portsmouth heading the list with the high death-rate of 28·3, Manchester, Glasgow, and Birmingham second, third, and fourth with 13·4, 12·7, and 12·4, as against 10·5, 12·9, and 10·8, respectively, the rest of the towns show lower death-rates, notably Edinburgh and Bristol, with falls from 17·4 to 10·1, and Bristol 17·0 to 11·1. The Registrar-General's returns of diphtheria death-rates per 1000 population for 1926 are as follows :—

England and Wales ..	0·08	158 smaller towns (population 20,000–50,000)	0·06
105 County Boroughs and Great Towns, including London ..	0·10	LONDON	0·12

Again, therefore, there is reason to dwell on London's high diphtheria figures. With reference to the comparison of London with other capitals and large cities, to draw conclusions from a period as short as three months is obviously fallacious, therefore recourse has been had to the last three years, 1924 to 1926, to show that London's diphtheria mortality occupies a high place on the list. Taking the averages of 1924 and 1925, there are only three continental towns or capitals whose mortality-rates are higher.

Sofia	20·6	Berlin	6·2
Moscow	16·5	Paris	5·8
Rome	13·2	Vienna	4·7
LONDON	11·5	Hamburg	3·1
New York	11·47	Hague	2·4
Dublin	10·25	Oslo	2·0
Leningrad	9·6	Brussels	1·9
Chicago	7·5		

For 1926, figures for twelve European towns and capitals are available, and among these London takes the third position.

Dublin	14·6	Berlin	7·6
Budapest	12·3	Copenhagen	7·0
LONDON	11·9	Stockholm	5·5
Edinburgh	10·1	Vienna	4·2
Paris	8·3	Hamburg	1·7
Warsaw	8·2	Oslo	1·0

* The Prevention of Diphtheria, Med. Res. Council, Special Report Series No. 115.

In reference to other parts of the world may be mentioned :—

1926.		1926.	
Auckland, New Zealand	8·3	Chicago	7·4
New Orleans	8·0	Sydney	7·1
New York	7·9	Madras	1·3
		Bombay	0·54

Quarterly fluctuations are too considerable to admit of fair comparisons of figures for the single quarter of 1927 such as Mr. Maben relies on—e.g., in London the quarterly variations in diphtheria deaths ranged as follows :—

1st .. 188 .... 2nd .. 117 .... 3rd .. 82 .... 4th .. 151

As regards case-mortality, London's position, as Mr. Maben points out, and for which perhaps credit is due, appears in a more favourable light especially in 1926. This may be in part due to the infection having been less uniformly prevalent all over London, but that does not imply that the disease has been milder in form, for its incidence during the past 18 months has been markedly focal and concentrated in particular areas, especially in parts of Deptford, Bermondsey, Southwark, Lambeth, and Battersea. In these foci of infection the disease has shown no diminution of its malignancy. Possibly but not positively also London's low case-mortality *may* be attributable to a larger proportion of the notified returns being uncorrected for errors in diagnosis in London than elsewhere. But it may be hoped that efforts to secure prompt treatment which the authorities have frequently urged and the efficiency of the treatment in M.A.B. hospitals has borne fruit. Thus of the large towns the diphtheria case-mortalities per cent. may be quoted as follows :—

Fifteen years' average.		1926.	
Newcastle	6·2	West Ham	2·8
Bristol	6·2	LONDON	3·9
Sheffield	6·3	Sheffield	4·7
Bradford	6·4	Birmingham	5·1
Portsmouth	6·5	Glasgow	5·3
Cardiff	6·8	Edinburgh	5·6
LONDON	6·8	Cardiff	5·6
Glasgow	8·5	Bristol	6·0
Leeds	8·8	Bradford	6·1
Edinburgh	9·0	Liverpool	6·7
Birmingham	9·6	Portsmouth	7·0
Liverpool	10·0	Newcastle	8·0
Manchester	10·4	Manchester	8·2
New York	8·2	New York	6·4
Chicago	9·3	Chicago	8·1

There has, moreover, been a general steady decline in case-mortality throughout England and Wales in the last decade from 10·9 in 1918 to 5·8 per cent. in 1926.

A discussion of the influence of errors in diagnosis of notified cases on the attack rates, to which Mr. Maben alludes, finds place in the report on p. 22. It must, for want of more accurate information, be assumed that such faults in the returns of notified cases, reckoned as diphtheria, affect the accuracy of all the sources of information uniformly and therefore do not prejudice one return more than another.

I am, Sir, yours faithfully,

J. GRAHAM FORBES.

County Hall, S.E., July 4th, 1927.

ETHER CONVULSIONS.

To the Editor of THE LANCET.

SIR,—In your issue of June 25th Dr. Gwathmey of New York attributes the convulsions I have described during the administration of ether to the presence of congestion of the lungs in these cases, and he expresses the view that such a condition is avoidable by preliminary medication. Whilst readily admitting that any condition which interferes with pulmonary ventilation is a possible contributory factor, such an explanation entirely ignores fundamental facts which cannot be disputed :—

1. Ether has been in continual administration for 70 to 80 years, yet these convulsive manifestations were not noted until 18 months ago.

2. For 50 years ether was administered without any preliminary medication with far more oxygen limitation and in greater concentrations than are usual at the present day, yet these convulsive attacks were never observed.

3. If the condition were due to insufficient ventilation by the lungs, the clinical features would be those of asphyxia and readily recognisable by any administrator of moderate experience, whereas cyanosis only developed after the respiratory centre ceased to function, and did not precede the convulsive attacks.

4. The presence of the impurities referred to in my paper does lead to pulmonary changes, as pointed out by Prof. Storm van Leeuwen, whilst such changes are not noticeable if a pure ether is used.

It is clear that the manifestations I described are of comparatively recent development and attributable either to changes in the ether or in modern methods of administration or both, and that the whole problem of the effects of pure ether requires reinvestigation in the light of these occurrences. Premedication by reducing the amount of a toxic ether will, of course, diminish the toxic effects, but the real solution lies in the exclusion of the toxic agent.

I am, Sir, yours faithfully.

Manchester, June 27th, 1927. S. R. WILSON.

PSYCHOGENIC ASTHMA.

To the Editor of THE LANCET.

SIR,—With reference to Mr. Moxon's letter in your issue of June 18th respecting Dr. E. B. Strauss's report of two cases of psychogenic asthma (THE LANCET, May 7th, 962), I should like to point out that they seem to me to be on all fours with Rivers's often cited case of claustrophobia. I discussed this in a paper published in the *British Journal of Medical Psychology*, October, 1925, v., 92–105, where I pointed out what seems to me to be the mechanism of formation of such neuroses.

If an exceptional experience, A, engenders a powerful emotion and is at the same time accompanied by some accidental experience, B, an experience that by itself would not arouse the emotions, then the recurrence of B tends to arouse a like emotion. At first the association between B and the emotion is not very strong, but gains in strength with repeated occurrences of B, until at last it becomes so strong that B itself gives rise to the emotion. This I regard as but a specific case of the "conditioned reflex," and it also explains very well the so-called "period of incubation," so often observed in war neuroses.

In my case referred to above there was A, the air-raids which engendered emotions of distress. The simultaneous accidental experience was the bright moonshine. Long after the air-raids had stopped the moonshine gave rise to states of vague anxiety, not directly attributed to the moonshine, and which states of anxiety became gradually stronger as time went on, until they were strong enough to engage my attention as to their cause. This required but little searching and the acquired knowledge of the causal connexion soon cleared up an incipient neurosis.

In Rivers's case there was A, the snarling dog which frightened the boy ; B, the passage, or enclosed space, where the boy happened to be at the time. His fear was increased as there seemed no means of escape. Gradually, as the boy grew up any enclosed space aroused fear, and the association with the idea of inability to escape would be strengthened. The case became one of claustrophobia, which again was cleared up as soon as causal relations had been established or understood by the patient.

In Dr. Strauss's cases there was A, the treatment the boy received from his nurse, followed by the experience of suffocation, and B, certain not definitely ascertained home surroundings. Whilst the boy was in hospital—i.e., away from home—he was free from asthmatic attacks, but he relapsed as soon as he returned home again. In the case of the woman teacher there was A, the accident of falling into the water and missing being drowned, evidently accompanied by the experience of suffocation. A reinactment of the accident in dreams was followed by

asthma. The dyspnœa in these cases is but a part of the emotional disturbance.

It is, in my view, not the bringing into consciousness, as such, which produces the cure, but the intelligent understanding by the patient of the causal relation of his trouble with the original occurrence. Dr. Strauss's juvenile patient was in all probability an intelligent child. This view of mine is confirmed by Janet's case "Marie," who being a stupid peasant girl could not be cured by bringing into consciousness the original occurrence which caused her stigmata; she was not able to grasp the significance. She was, however, relieved of her troubles by suggestions that the occurrences had never happened.

I venture to think that your readers will prefer such simple explanation of Dr. Strauss's cases, which has the advantage of being based on known physiological or psychological facts as well as clinical observation, to Mr. Moxon's psycho-analytic speculation. I am, Sir, yours faithfully,

Shortlands, Kent, June 21st, 1927. A. WOHLGEMUTH.

"AN OPPORTUNITY FOR PHARMACISTS."

To the Editor of THE LANCET.

SIR,—I read the annotation on this subject in your last issue with satisfaction, because the balance was so justly held. I was present when the paper was read, and had the advantage of hearing the discussion on it.

The pharmacist, by his training, from bottle-washing to the higher flights of chemistry and botany, is usually an adaptable person. He has to learn so many things that an extra subject is hardly noticeable, but he is also faced with the necessity of earning a living. My experience, in a good-class suburban business, is that so far there is no sign of an opening for pharmacists of the kind alluded to by Dr. Burn. I say this with due respect to the author of the paper, and would add that I am not writing in my capacity as a member of the Council of the Pharmaceutical Society, but rather as an ordinary pharmacist. My personal opinion is, that the present pharmaceutical curriculum is more than adequate to meet the requirements of everyday practice. At the same time it was made quite clear, in the most instructive discussion, that if pharmacists are required to undertake the work outlined by Dr. Burn they will not be found wanting.

One speaker after another, who had been specially trained for the work, asserted that there was "no opening," and that what work there was went to central laboratories. The reduced allowance for "insurance dispensing," coupled with the high cost of living, make things very difficult for the pharmacist who has to depend solely on the so-called professional side of his business. To make both ends meet he is compelled to secure "side lines" of a commercial kind, for which there is a demand.

I need hardly add that the Pharmaceutical Society, old as it is, is none the less alert, and I agree with you that the time may come—and probably will come—when there will be a cleavage between two schools of pharmacy, but the time is not yet.

I am, Sir, yours faithfully,

Ealing, W., July 3rd, 1927. THOMAS MANUS.

ANÆSTHETISTS AND INQUESTS.

To the Editor of THE LANCET.

SIR,—The tendency to throw blame upon an anæsthetist indicates a state of mind which has parallels in the suspicion surrounding certification of the mentally unsound, and, as shown by recent legislative events, the control of the mentally defective. But it has results peculiar to itself. Fortunately the judgment of a surgeon is rarely hindered by fear of criticism in the event of an unfavourable issue, and on the whole it is well that it is so. When grave problems have to be faced, and risks to be taken, the decision must not be influenced by the possibility of the operator being called upon publicly to face an inquiry, the mere holding of which implies that his conduct and skill are impugned. The freedom from this danger allows of free discussion and, if necessary, free technical criticism from those qualified to offer it, but these advantages are absent when an inquest is given a capricious publicity undirected by a knowledge of the risks, practically negligible in the mass, that remain after the fullest care and skill have been exercised.

The demand for explanation of deaths under anæsthetics has, in fact, seriously hindered the advance of knowledge. The writer has no recollection of any inquest concerning such a death in which medical witnesses have frankly admitted that there was no pathological condition found post mortem to account for the death, and we may safely assume that such an admission would inevitably have led to the belief that the fault lay with the anæsthetist.

A certificate of death records whether any operation has preceded the fatal issue, and it is perhaps partly due to the antiquity of the surgical art that the question whether the operation has caused or hastened death is rarely raised. Anæsthetics are modern, and their introduction was marked by opposition of a peculiar kind, in which theological considerations played a part, but we cannot say how far a relic of this opposition is responsible for the selection of this one mode of death as demanding a definite pathological explanation. We, as a profession, are sometimes accused of assuming the mantle of infallibility, but in this matter the mantle is forced upon unwilling shoulders. A medical witness would risk professional ruin if he told a jury "I gave this anæsthetic with a correct technique, with every care and precaution, but the patient died, and I cannot tell you why he died."

The fact that the thymus is often found enlarged has in many cases served as a basis for explanations which satisfied coroners' juries and the public, and gave us a sense of finality which solved the immediate difficulty and arrested further inquiry. But now doubt is being thrown upon the existence of status thymico-lymphaticus, and each of the many deaths ascribed to that condition represents an unsolved problem. Prof. Carl Hart, to quote only one writer, says: "For the teaching concerning status thymico-lymphaticus began like many other teachings. At first accepted grudgingly by physicians, it has now more and more fallen a prey to uncritical application and exaggeration, and finally become a great rubbish heap upon which all conceivable morphological and functional phenomena have been thrust." (Die Lehre vom Status thymico-lymphaticus. Munich: J. F. Bergmann. 1923. P. 1.)

The observation in your leading article of June 25th, that the publicity of these inquests instils fear into the public mind, and thus increases the possible dangers of anæsthesia, perhaps contains the clue which has been obscured by that demand for material explanations which produced the hypothesis of status thymico-lymphaticus. It needs no psychologist to prove that fright can kill. But may it not be that the neglect of psychological considerations on the part of ourselves, in conjunction with an unfortunate demand from the public for physiological explanation, has led us astray from the scientific path?

I am, Sir, yours faithfully.

June 27th, 1927. OPERATING SURGEON.

INCREASE IN HOSPITAL BEDS.—During the past few weeks several foundation-stones have been laid, not only of voluntary hospitals, but also of Poor-law institutions. Willesden General Hospital is to have two new wards, one for children, and a new operating theatre. At Brixham, on a beautiful site at the edge of the town, a new hospital is being erected. The guardians at Derby for the last 14 years have realised the need for enlarging their hospital. The site of the new building is opposite the existing Poor-law institution; it is calculated that the hospital will cost over £83,000.

Obituary.

JAMES WALKER DAWSON, M.D., D.Sc., F.R.C.P., F.R.C.S. EDIN.

THE death of Dr. James Dawson at his home in Edinburgh will be deeply regretted not only by his personal friends and colleagues in Scotland, but by many who knew him only by his published work. Dr. Dawson had a shy and retiring disposition; he shunned publicity, and spent the last 20 years working steadfastly in his laboratory. The outside world saw little of him, but the charm of his personality was at once manifest to those who interrupted his labours to seek advice or help. This was never denied, but indeed was given in full measure; no trouble could be too great if its object was to further research.

Throughout his life Dr. Dawson was hampered by ill-health. He was born in India in 1870, and began his medical course at Edinburgh University as early as 1886, but was interrupted by ill-health and did not graduate till 1904. Four years later he obtained the degree of M.D., being awarded a gold medal for his thesis on Inflammation, and shortly after this he was awarded the Syme Surgical Fellowship. He was later a Carnegie Research Fellow, for a time assistant pathologist to the Royal Infirmary, and was pathologist to the Longmore Hospital to the time of his death. Dr. Dawson's main work was performed as histologist to the Research Laboratory of the Royal College of Physicians, Edinburgh; here and in the library of the College he carried out those most careful and painstaking observations on pathological histology which brought him fame. Up to 1916 neurological pathology formed the greater part of his research, in particular, disseminated sclerosis, multiple neuromata, and the lymphatics of the nervous system. Thereafter he devoted much time to the study of malignant growths. His exhaustive monograph on the melanomata, beautifully illustrated by 30 plates, ranks as a classic work of reference. With Mr. J. W. Struthers he wrote an authoritative article on Osteitis Fibrosa; his final illness prevented the completion of a paper on breast tumours. Most of his research appeared in the *Edinburgh Medical Journal;* we have often had occasion to draw attention to its importance.

Dr. Dawson was a Fellow of the Royal College of Physicians of Edinburgh, and was elected a Fellow of the Royal College of Surgeons of Edinburgh in recognition of his valuable services in the advancement of surgical knowledge. His routine surgical reports are worthy of special note. Specimens referred to him for his opinion were invariably subjected to a keen and critical examination, and exactly those points were stressed which enabled the surgeon to gauge the extent to which operation should be carried. He was one of the vice-presidents of the Section of Pathology and Bacteriology at the British Medical Association annual meeting to be held in Edinburgh next week. This year also he was to have delivered the Morison lectures by invitation of the Royal College of Physicians of Edinburgh, and he had already collected a considerable amount of data for this purpose; it is to be hoped that this material will not be completely lost to science.

During the war Dr. Dawson acted as lecturer in the University of Edinburgh, and was to have continued in this post; but few had the benefit of his teaching, since ill-health forced him to resign.

A fellow pathologist writes: "His pathological friends have to thank James Dawson for much good work, and it is sad to think that there can be no more of it. The quality was such, and reached by such thorough painstaking toil, that we all trusted and believed in what he had to say about disseminated sclerosis, the healing of wounds, osteitis fibrosa, and lastly in his monograph on the melanomata. Dawson believed in it too, for when he had got through the painful process of satisfying his own conscience that his conclusions were justified, it was not easy to get him to modify any definite opinion that he had achieved. His ally, Mr. Hamilton, will continue to produce the beautiful large sections which Dawson did so much to popularise, and his essay, Religio medici, is a permanent record of the gentle sincerity with which he lived."

JOHN LEACH, M.B., C.M. ABERD.

Dr. John Leach, who died last week at Graffham, Sussex, where he was acting as resident physician to Lord Woolavington, was a familiar figure in the North of Scotland, for he had practised for over 30 years at Beauly, his duties taking him into the remotest parts of Ross-shire. He was born at Ardersier, Inverness-shire in 1867, educated at Marischal College, Aberdeen, qualifying in 1892, when he took resident appointments at Inverness District Asylum and at the Manchester Maternity Hospital before settling in Beauly. Here he came to take a large part in public life, representing his division on the county council and serving on the parish council and school-board. He was also an active member of the county insurance and panel committees. His first association with the Territorial Service was when he was medical officer at Beaufort to the Scouts raised by Lord Lovat during the South African War, and he retained the appointment of medical officer to the 1st Lovat Scouts Yeomanry tili 1915, when for the remainder of the war he was attached to the Highland Mounted Brigade Field Ambulance at Inverness. Dr. Leach was the recipient of many marks of respect and affection on his recent retirement from general practice. He was in his sixty-first year and leaves a widow and three sons, one of whom maintains the family medical tradition at Beauly.

CHARLES GASKELL HIGGINSON, M.A. LOND., M.D. DURH., L.M.S.S.A.

Dr. Higginson, who died in a nursing home at Edgbaston, Birmingham, on June 26th, in his sixty-ninth year, was son of the Rev. Edward Higginson and was educated at his father's school at Swansea and later at London University, where he took his M.A. in 1881 with distinction in philosophy and economics. It was not until some ten years later that he entered the Manchester Medical School, from which he qualified in 1897, thereafter spending three years in resident hospital appointments and finally acting as assistant to Dr. F. R. Walters at Crooksbury Sanatorium, where his interest in tuberculosis was awakened. After settling in Edgbaston his practice developed in this direction, and he contributed freely to medical journals on such subjects as the rational treatment of capillary hæmoptysis, the cure of consumption according to the methods of George Bodington and Henry MacCormac, and the technique of staining tubercle bacilli. During the war he acted as civil surgeon to the 2nd Birmingham War Hospital. Never very robust, his activities covered a wide intellectual field; he was an earnest student of poetry and an accomplished traveller.

WALTER HENRY RYAN, M.R.C.P.I.

Dr. Ryan, who died at his home in Roade, Northamptonshire, on June 26th, was a practitioner well known throughout the county. A native of Scarteen, co. Limerick, he was educated at St. Mary's College, Oscott, and studied medicine at the National University of Ireland, qualifying in 1876 and being elected a member of the Irish Royal College of Physicians 12 years later. On returning to this country he acted first as assistant at Leighton Buzzard before practising on his own account at Hanslope and later at Roade. He became medical officer to the local rural district council and to the board of guardians, on which he served as a member for many years. No mean cricketer himself, he was a member of the county club for nearly 40 years and was indefatigable in arranging tennis tournaments on behalf of local charities. At the time of his death he was the oldest member of the Grafton Hunt. He leaves a widow and a son in the Royal Army Medical Corps.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Rear Adml. Arthur Gaskell, C.B., O.B.E., took up his duties as Director-General of the Medical Department of the Royal Navy on July 1st.

Surg.-Capt. A. R. H. Skey and Surg.-Capt. H. C. Whiteside to be Surg. Rear-Admirals.

Surg. Comdrs. C. T. Baxter, A. McCloy, and G. L. Buckeridge to be Surg. Capts.

Proby. Surg. Lt. R. Erskine-Gray to be Surg. Lt.

Surg. Lt. D. H. Kernohan to *Pembroke*, for R.N. Barracks, Chatham.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Lt. W. J. Payne to *Victory*, for R.N. Hospl., Haslar, for 28 days' training.

Surg. Lt. (D.) W. M. Bull, to *Victory*, for R.N. Barracks, for 14 days' training.

Proby. Surg. Sub.-Lt. D. W. Bawtree, to *Tiger*, for further 14 days' training.

ROYAL ARMY MEDICAL CORPS.

Temp. Capt. W. Bligh to be temp. Maj.

TERRITORIAL ARMY.

W. C. Armstrong to be Lt.

Supernumerary for service with O.T.C.: 2nd Lt. W. E. Underwood, from the Gen. List, T.A., to be Lt. (Med. Unit, Lond. Univ. Contgt., Sen. Div.).

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. F. A. Roper, from Active List, to be Lt.-Col.

Maj. (Bt. Lt.-Col.) C. H. Lindsay, from Active List (Supern.), to be Maj. (Bt. Lt.-Col.).

Capts. D. Cameron and R. A. Quinn, from the Active List, to be Capts.

ROYAL AIR FORCE.

Wing Comdrs. to be Group Capts.: A. V. J. Richardson and J. McIntyre.

INDIAN MEDICAL SERVICE.

Lt.-Col. W. D. A. Keys to be Bt. Col.

Maj. J. Scott to be Bt. Lt.-Col.

Capt. C. J. L. Patch to be Maj.

Lt. H. W. Mulligan to be Capt.

SMALL-POX LEAVE RESTRICTIONS.

A Fleet order announces that restrictions, on account of small-pox, are applicable in Abercarn, Abersychan, Blaenavon (Mon.); Annfield Plain, Auckland, Brandon and Byshottles, Chester-le-Street, Crook, Durham, Easington, Felling, Gateshead, and Hetton (Durham); Ashington (Northumberland); Bentley-with-Arksey, Conisbrough, Doncaster Borough and Urban District (Yorks); and Derby.

DEATHS IN THE SERVICES.

Surgeon Rear-Admiral George Albert Dreaper, Extra Hon. Surgeon to the King, who died on June 28th at the Royal Naval Hospital, Haslar, within a few days of 64 years of age, was educated in Dublin, and entered the Royal Navy in 1884. He was staff surgeon of the *Magicienne* during the Jubaland expedition, 1900–01, when he was landed in charge of the military hospital, and received the appreciation of the Admiralty, the General African Medal, and the Jubaland clasp. In the Somaliland expedition of 1904 he was fleet-surgeon of the *Fox* in command of the medical staff, and was landed for the capture of the Mullah's stronghold at Illig. For this service he was mentioned in dispatches, and received the General East African medal with clasp for Somaliland. From 1908–10 Fleet-Surgeon Dreaper was in charge of the surgical wards at Chatham Naval Hospital, and was promoted to Deputy Surgeon-General in 1913. Later he took over the charge of the surgical wards at the naval hospitals at Plymouth and at Hong-Kong. He was promoted to Surgeon Rear-Admiral in 1919, was made C.B. in 1920, and was in command of the Royal Naval Hospital at Chatham until 1923 when he retired. In 1910 he married Constance Amy, daughter of Mr. Henry de Blaquiere, J.P., of Fiddane, Gort.

Col. John Smyth, I.M.S., retd., died at his residence, Apsley-road, Clifton, on July 2nd. He graduated M.D., M.Ch. R.U.I. in 1879 and received his first commission in the Army in 1881, reaching the rank of Major in the I.M.S. in 1893, Lt.-Col. in 1901, and Col. in 1911. He served with the Soudan Expedition, 1885, and was present at the actions of Hasheen and Tofrek; and the destruction of Tamai, where he was wounded. (Medal with two clasps; bronze star.) He had also been medical officer to the Maharajah of Mysore and Honorary Surgeon to the Viceroy.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JUNE 29TH.

MINISTRY OF HEALTH VOTE.

THE House went into Committee of Supply on a vote of £12,943,593 for the salaries and expenses of the Ministry of Health. Mr. CHARLES EDWARDS was in the chair.

Mr. NEVILLE CHAMBERLAIN (Minister of Health) said that this year there was an increase in the vote of a little more than £1,105,000, but he did not imagine that he would be accused of extravagance, because the increase was due to causes which operated automatically, and was, moreover, brought about by policies which had been approved in all quarters of the House. Some £960,000 was accounted for by an increase in the number of houses upon which subsidy was paid, and there was a further £171,000 on the grants-in-aid for health purposes, and still another increase of £91,000 in respect of the cost of administration due to the additional staff required for the purposes of the Contributory Pensions Act. The amount provided for housing—£9,340,000—was nearly half of the total estimate amounting approximately to £19,500,000. In the five years preceding the war the average number of houses built in this country was about 61,000. Taking the last three years—in each case the 12 months ended March 31st—the number built in 1925 was 137,000; in 1926 it rose to 173,000; and in 1927 to 217,000. That was really an astonishing, a prodigious effort on the part of this country which he did not think could be paralleled anywhere else in the world. (Cheers.) The number of houses which had been added to the common pool was so great that as it proceeded its effects would be felt through every class of the population, and he felt confident that they were approaching the time when they might hope to see some much more active progress made with the improvement in the conditions of the slums. The cost of the new houses, however, appeared to him to be far too high, and the problem before them at the moment was to see how that cost could be reduced. There were two ways by which it might be reduced; one concerned the size of the house. There was very little doubt that the rents which had to be charged for the bulk of the new houses were inflicting a very great strain on those who were paying them, while they made it impossible for many others to obtain the accommodation which they desired in a new house, because it was altogether beyond their means. He was not in favour of lowering the standard of housing, but it was no use to blink facts, and while it was very easy to be eloquent about the difference between the houses occupied by the rich and the poor, as a matter of fact they could not divide the population by a sharp line into two categories of that kind. Everything must be adapted to the question of means, otherwise people would come to disaster. He thought that it was a mistake to assume that every family wanted a bigger house which not only meant more rent to pay, but entailed more work in keeping clean and warm. Local authorities were finding that they were getting towards the end of that section of the community which could pay the rents of houses such as they were now erecting and that being so he thought they were wise in remembering that what they had to compare was not a small new house with a large new house, but a small new house with the houses in which people were living now, or the rooms in a house in which they were living now, and that if they built houses which contained all the necessaries of life, but with somewhat smaller accommodation than was contained in the houses which they had been building lately, they would probably meet the wishes of the greater number of their inhabitants. Events had completely justified the predictions he had made last December, when he asked the House to approve the draft Order under which the subsidies payable under the Acts of 1923 and 1924 would be reduced as from October next by an amount which was equivalent to a capital sum of £25 per house. The prices of non-parlour houses which before the commencement of the withdrawal had ranged from £440 to £450, fell immediately to the neighbourhood of £425 for houses with exactly the same accommodation. Since then there had been a still further drop. Last month the average size of the houses was distinctly smaller and the prices had actually gone down to something below £400.

Town Planning.

Public appreciation of the value of town planning seemed to be generally increasing. It saved unnecessary and wasteful expenditure in the future and at the same time preserved amenities and conveniences for the public. At the present time some 2,700,000 acres were covered by town planning and regional planning schemes. The development of regional planning was of the greatest importance, because it was obvious that to plan a limited area without regard to

what would happen in the surrounding areas must necessarily mean a good deal of wasted time and might lead to the adoption of plans which subsequently would have to be altered. Therefore he was glad to know that the adoption of regional planning which involved the coöperation of a great number of local authorities was proceeding so rapidly and smoothly, and he thought that further progress in that direction would be very valuable for the country as a whole. In those schemes and otherwise local authorities were beginning to make much greater provision for playing fields. In this connexion steps had at last been taken to set up a Regional Committee for Greater London which presented problems which were unique in the constitution of its local authorities and in the extent of its area. Another matter to which he wished to refer was the preservation of London squares. The Government had accepted the view of the London County Council and proposed to set up a Royal Commission to go into the whole question. With regard to national health insurance he would like to say something about the additional benefits provided out of surpluses disclosed upon the second valuation of approved societies. Nearly £24,000,000 was shown to be available for distribution under the second valuation, but out of that sum over £11,000,000 had already been allocated by the societies for additional cash benefits, leaving about £12,000,000 available for non-cash benefits. The latter sum was increased by the State grant and interest until it had reached the astonishing sum of £18,000,000 available for distribution in treatment benefits during the five years covered by the surpluses under this valuation. That meant that altogether some £3,750,000 a year could be and was being spent on these additional treatment benefits. The societies had allocated to dental benefits as much as eight times the amount they were able to allocate under the first valuation and to ophthalmic benefit as much as 12½ times the amount they had formerly allocated. In connexion with dental benefit a scheme had been arranged under which for the most part the societies paid 100 per cent. in the case of conservative treatment of teeth and 50 per cent. of the cost of dentures and they had set up as recommended by the Royal Commission a regional dental service consisting of one principal and five regional dental officers whose duty it was to advise in cases of dispute between approved societies and dentists. That had required and would require a large number of examinations of the persons concerned. Up to the present there had been something like 2600 references to these regional officers. The greater part of those references had already been cleared, but a certain amount of delay had been experienced owing to the fact that nearly 40 per cent. of the insured persons had failed to keep their appointments with the dentists. He hoped that as insured persons got more experience their attendances would improve, and he felt very well satisfied that the provision of this additional benefit, under which over 13,000,000 people, many of whom had never been in the hands of a dentist before, would now have their teeth attended to, would mean greatly improved health on the part of insured persons and as a consequence a decrease in the claims upon the funds of the approved societies. The International Labour Conference which had just concluded, and which represented about 38 countries, had adopted a draft convention which was based principally on the same principles as our own health insurance scheme, and he had hopes that the majority of the countries, at any rate, would ratify the convention.

Improvement in Public Health.

With regard to the state of the public health he was glad to be able to give a good report. There were two general tests which they applied—namely, the general death-rate and the infantile mortality-rate—and in both cases there was an improvement. Last year the general death-rate was 11·6 per 1000, compared with an average of 12·2 per 1000 in the five years preceding, and the infantile mortality-rate, which had been 76 per 1000 in the preceding five years, had come down to 70. This denoted a general improvement in the physique of the infant population and also an increase in the understanding of the responsibilities and duties of motherhood. One could not say too much in praise of the great system of maternity and child welfare centres which were now spread throughout the country and on which an immense amount of devoted voluntary effort was being expended. To that he thought they must ascribe the continued improvement in the infantile mortality-rate, with which they had so much reason to be satisfied. In other respects the health of the nation continued to improve. There was a steady decline in the mortality due to tuberculosis, to scarlet fever, and to typhoid fever. He wished he could say as much for cancer. He was sorry to say that the deaths from cancer continued to increase and he was not able to announce any new discovery which gave them hope of being at an early date able to cope with that disease. But their knowledge was increasing all the time, and he had little doubt that the day would come—and he hoped it was not far distant—when they would be able to put cancer among those diseases of which they considered themselves the master. The records of small-pox in this country were becoming very alarming. In 1922 there were 973 cases; in 1923, 2500; in 1924, 3800; in 1925, 5300; in 1926, 10,100, and this year up to the end of May they had had 8700 cases. Those were for England and Wales, including London; they did not include Scotland. Fortunately the type of small-pox at present was of a very mild character, but one was always afraid that they might see a recurrence of that very virulent form of which they had had experience before and which was one of the most deadly diseases of which they knew. He had set up a committee to inquire into the question of vaccination, and he would not say any more on that subject, except that it was quite clear from these figures that the extent of the disease was now assuming serious proportions and even though mild in character it was inflicting an amount of pain, suffering, and loss which was preventable, and ought to be prevented, and presently they would have to take some further steps to see if they could not diminish it. He wondered whether the Committee realised the part which this country was playing in measures which were taken internationally for the prevention of disease and the improvement of health. The League of Nations had a Health Committee upon which this country had a representative and upon which there was also a representative of India. He hoped that in future there might also be representatives of other parts of the Empire. This Committee was engaged at the present time in two pieces of work which were certainly of direct interest to us as a country and to the British Empire. One of them was concerned with the establishment of an Epidemic Intelligence Centre at Singapore. The sanitary administration of the ports in the Far East was a particularly difficult problem because each one of those ports was surrounded by great areas in which the conditions were such that epidemic diseases were always present, and it was of the very first importance to prevent the spread of diseases like yellow fever, plague, or small-pox by communicating information from one sanitary port officer to another. By the generosity of the Rockefeller Trustees this Epidemic Intelligence Centre had been established at Singapore, and thanks to that and the introduction and development of wireless it was now possible to convey information with great rapidity and at an extremely low cost, and he thought the results were invaluable to British interests generally and to British shipping in particular. There was also the work which was being done by the Health Committee of the League of Nations in the investigation of the prevention of malaria. A great deal was already known about malaria, thanks largely to the researches of British investigators. They knew that malaria could be stamped out in particular localities, as had been done in Panama, but these measures were very expensive, and what the League was doing now was an attempt to discover some new methods of prevention which might perhaps be less intensive in their scope, but which would be less expensive and could therefore be put into operation over larger areas. At the Paris Sanitary Conference, held last year, and the Pacific Health Conference at Melbourne, this country was very ably represented by officers of his department.

Hygiene and Tropical Medicine.

He had finally to mention two projects, both of first-rate importance, which were now proceeding in London. In 1920 a committee was set up under the chairmanship of Lord Athlone by the then Minister of Health, Dr. Addison, and one of its recommendations was that there should be established in London a school of hygiene and tropical medicine. That school was now being built. The Rockefeller Trustees, who took the greatest interest in all matters of international health, had contributed a sum of $2,000,000 and the British Government had made itself responsible for the maintenance of the school when it was completed. The school was of the greatest interest to the British Empire because there were so many portions of our Empire in the tropics whose future prosperity depended largely on our power to control tropical diseases which at present took such a tremendous toll of our people and of the native populations. They believed that this school would form a centre to which could come those who were proposing to embark on a career as medical officers of health or medical practitioners in the tropics. They would be able to see there clinical material actually suffering from the tropical diseases which they would find when they got to their destinations and where also they would be able to study those general principles of public health which governed all administration of the kind whether in the tropics or in temperate climates.

Post-Graduate Medical Study.

The other project was also one of the recommendations of the Athlone Committee. It was that there should be established in London a post-graduate medical school. Unfortunately for one reason or another this

recommendation had never yet been carried out, but now he thought they were approaching a time when they would see it accomplished. Some little time ago he had set up a strong committee of physicians and surgeons under his own chairmanship to consider what was the best way of carrying the proposal into effect. The committee laid it down that it was not possible to combine in one school undergraduate and post-graduate teaching, and that was a conclusion which he thought was supported by all expert opinion. Therefore they had to consider whether they should contemplate the building of a new school or whether it would be possible to adapt some existing institution. They decided against the building of a new school, because that meant, in order to obtain the necessary clinical material, the building of a hospital with 400 beds which would have involved not only a very large capital expenditure, but also an annual liability for the maintenance of the hospital. The Committee therefore devoted themselves to an examination of various existing institutions, and they came to the conclusion that they could find what they wanted in the West London Hospital at Hammersmith. That was a hospital which had a long experience of post-graduate teaching. It had space into which it could extend, so that the necessary lecture rooms and laboratories and additional beds could be provided, and the scheme had been accepted in principle by the authorities of the West London Hospital. At the present time the buildings were being examined by technical experts with a view to seeing how they could be adapted and extended so as to make them available for this purpose. If this scheme could be brought to a conclusion it was going to be a great thing for the medical services of this country and of the Empire, and he might almost say of the world. One of the difficulties to-day was that medical practitioners who might have had a magnificent training before they entered into practice went down into some remote part of the country and found themselves unable in any way to keep abreast of the most modern work. He hoped that in this school it would be possible to give short refresher courses to general insurance practitioners.

Mr. MACLAREN: Would it be compulsory?

Mr. CHAMBERLAIN said that he was not contemplating that at present; obviously financial difficulties would arise. He hoped, however, that practitioners would avail themselves of it as it became further known. More than that, it would be a meeting place where medical men would come from all parts of the Empire to exchange ideas and experiences, to see what the latest experiments and the latest methods were, and what success had attended them. He found that in America also a project of this kind was welcomed most warmly. Many American doctors liked from time to time to come over to Europe to see what was being done here and to check their own experience against European experience. The completion of a scheme of this kind would mean the expenditure of large sums of money, but when it was realised what a great conception this was and what a vast influence it might have in raising the general standard of medical practice, not only in this country, but in other countries, he felt confident that the funds that were necessary would not be wanting.

Dr. VERNON DAVIES: Would this hospital be built and financed by the State or privately?

Mr. CHAMBERLAIN: I am not at present contemplating that it should be financed by the State.

Dr. DAVIES: What connexion will the Ministry of Health have with it?

Mr. CHAMBERLAIN: It is possible that a contribution might be given to such a hospital from the educational point of view, and that would bring the Ministry of Health into very close contact with it.

Mr. CRAWFURD moved to reduce the vote by £100.

Criticism of the Ministry.

Mr. RHYS DAVIES said that some sections of the community were very dissatisfied at the present position in regard to deaths of women in childbirth. He was informed that about 3000 women died from that cause every year in this country, and he would like to know whether London was better placed in regard to convenience and technical skill in dealing with maternity cases than the provinces. If that was so, he would urge the Minister to do something to save their womenfolk in the provinces and to see that they had the same facilities which were provided for the women of London. As regarded the question of housing he thought that the Ministry of Health ought not to concentrate on reducing the size of houses, but rather on reducing the cost of building them. The Minister had said that the cost of houses was too high, but he had not told the Committee what he was going to do to reduce the cost. He was glad that regional dental officers had been appointed to check the work of the dentists, because he was convinced that a few of the dentists even now did not play the game with approved societies. Complaints from some quarters were so strong that some of the approved societies were already thinking of diverting some of their surplus funds for use in other directions. If some of the dentists and opticians did not treat the societies better he would make it his business to see whether other additional benefits could not be established in order to divert the funds from those purposes. He must say, of course, that it was only a small section of the dental and optical professions that he complained about. The work of regional dental officers had been made very difficult, and there were many complaints of delay. He did not see how those delays were to be avoided. The regional medical officer could call a patient to him during the daytime, because he was on the sick fund and not at work. But in the case of the insured person who required dentures he could only attend in the evening, and this created a problem which he trusted the department would inquire into. Some approved societies were not at all satisfied with the arrangement whereby a person suffering from anything connected with the eyes was sent automatically by the medical practitioner to the ophthalmic surgeon. They were not satisfied that the ophthalmic surgeon should have a fee of one guinea for giving advice that ought in some cases to be given at a very much cheaper rate. It would destroy the confidence of approved societies in the work of the medical profession if the panel doctor automatically referred an insured person to the ophthalmic surgeon, and a fee of a guinea had to be paid to the latter for his work. It was also stated—he did not know how far the statement was justified—that optical practitioners claimed from 100 to 300 per cent. profit on the spectacles they sold. At any rate, the Minister ought to give some attention to the charges that were being made. He would also do well to inquire into the charges made for surgical appliances to members of approved societies. The Labour Party welcomed any new projects with regard to research into diseases, or with the idea of giving higher and better education and greater facilities to medical practitioners to improve their knowledge for the benefit of the health of the community. But what they would like to know was the extent to which the Ministry of Health intended to back up those projects financially. National Health Insurance was proceeding smoothly, and the work was being performed, as far as he knew, by the medical profession as a whole very well indeed. But he would like to see the Minister doing something beyond merely paying away benefits. He should do something to aid research work, and they had surely reached a stage when a sum of money should be made available for that purpose.

Health Insurance and Preventive Medicine.

Lieut.-Colonel FREMANTLE said that so far as the fees of ophthalmic surgeons were concerned he was certain that such matters would be rightly arranged between the Ministry of Health on the one side and the medical profession on the other. The medical profession would be the first to back up the plea put forward by Mr. Davies for research. He would endorse any proposal for giving more help to the Medical Research Council, or to research generally, but it would be unfair not to mention that that research arose out of the National Health Insurance scheme. It was true that they should look beyond the relief which had been provided by that scheme. When they looked at the larger and wider object aimed at specifically in the Act—namely, the prevention of disease—it had to be admitted that the whole insurance scheme had been a dead failure; it had not resulted in the prevention of disease in any way, and it did not tend in that direction. It was only in so far as they might be able in future administration to correlate the system of the insurance scheme with that of preventive agencies throughout the country that they could hope for any marked improvement. Poverty was one of the three essential elements in the causation of ill-health; the other two were ignorance and carelessness. It was quite certain that grinding poverty was at the bottom of a large amount of ill-health at the present time. If they could do away with that poverty for which the individuals were really not responsible, as had been largely done by the Widows, Orphans, and Old Age Pension scheme, they were going a long way towards improving indirectly the health of the community. The supply of houses was still inadequate. By the middle of 1930, if they continued to build at the present rate, they would have the population housed on much the same conditions as in 1911, with some improvement. But in 1911 in England and Wales there were 3,200,000 persons living in overcrowded conditions, more than two to a room. That condition of overcrowding continued now. The conditions in certain parts of London were appalling, and they had to be tackled; they were no less difficult than the task of overcoming the mere lack of houses, but they had to take up the question. If they read the reports of medical officers of health throughout the country they would find that during the last ten years they had skimmed very lightly over the question of the dilapidated house. They had done so because when they had reported houses as not fit for habitation no action had been taken; the local authority did not dare to take action. He hoped that this question would be taken up with increasing energy

by the Ministry of Health as the number of houses built became more adequate. He also suggested that the Ministry at least once every five years should call for a housing survey by the medical officers throughout the country, not only of the individual areas, but also of areas grouped together under the county councils. Any idea that they had come to the end of the housing problem merely because they had such a fine record as the Minister of Health had put before them that day would be grossly misleading, and he hoped that they would continue to take an active part in trying to arrive at a solution of this seemingly interminable problem.

Use of Accumulated Funds.

Mr. BRIANT said that there were many directions in which he wished to see the accumulated balances of the approved societies used. Any medical man would support him in the statement that a very large number of women who died in childbirth, or who lived on with enfeebled constitutions, could be saved from death or ill-health if they had proper medical care and had certificated midwives to attend them. He would like to see these balances used to make definite provision for the proper nursing and care of women in that condition. In his experience a large number of men and women who had not recovered from the direct effects of illness returned to work before they were fit. This meant enfeebled constitutions, if it did not actually reduce their years of life. He thought in time some way might be devised by which every worker should have the opportunity of being sent away for at least a month on a doctor's certificate, and by which funds should be provided to keep the family in the condition in which they were kept while the wage-earner was fully employed. He wished to make it clear that as a layman weighing up the evidence he had long been convinced that on the whole vaccination was a preventive of small-pox, but he was bound to add that recently there had been some statements which were at least disconcerting, particularly with regard to the possible connexion between encephalitis and inoculation. He was not satisfied that they were getting all the facts. If anything would deter people from vaccination it was a doubt as to what effects it might produce in their children. He understood that the Andrewes Committee made a report which was in the hands of some French people and had been published by them, but had never been submitted to the English public. That report ought to be made public here. They had a right not to wait for the result of the inquiry which was now being held, but to ask for some preliminary report from the Committee giving information as to the cases of encephalitis which had occurred within a period of two months after vaccination. He was disturbed the other day when the Minister of Health in answer to a question said he saw no reason why the report of his own medical officer with regard to the conditions in the hop districts should be issued. He (Mr. Briant) had visited the hopfields, and some of the conditions were disgusting and almost beyond belief. He hoped that the Minister would be able to give some more information on this subject. He hoped that whatever the Ministry might do in the way of research they would do it thoroughly. He hoped that they would not spare money in this matter, for if they could save the health of a single person the community would get the money back in a few years' time. He had every confidence in the Minister who was keen on these subjects himself, and he hoped that the right hon. gentleman would give some encouragement to those who felt that the opportunities for good of the Ministry of Health were probably unequalled by any other Ministry.

Small-pox Difficulties.

Dr. VERNON DAVIES said that the impression which he had gained from the speech of the Minister was that the outlook in regard to cancer was very much better than it had been, and that the right hon. gentleman almost ventured to prophesy that within a more or less reasonable time they would have a cure for that disease. They hoped that that was so, but he thought that it was much too strong a statement to go forth to the public at the present time. Very good work was being and had been done, but at present it must be emphasised again that the only chance for a patient with cancer was early and complete operation. He would like to ask some questions in regard to the post-graduate hospital. Most of the London hospitals and many provincial hospitals had post-graduate students. Was the new hospital going to become a State hospital for post-graduate study, not confined to medical men in this country, but open to medical men of all nations? Would a fee be charged to these medical men? That was rather an important point, because one would like to know whether it was the beginning of the State control of medicine or of a State medical service, or if it was simply the State helping medical men to provide facilities at a low cost to themselves. They had such facilities at the present time provided they were willing to pay for them at most of the London and provincial hospitals. During the year ended April 2nd last there had been 12,922 cases of small-pox notified in this country; the deaths registered during the year ended March 31st from small-pox were 33; this year there had been so far 28 deaths, 21 of unvaccinated people and 7 of people vaccinated in infancy; in the county of Durham there were 20 cases of small-pox in 1924, 1138 cases in 1925, and 6645 cases in 1926. There were also 9 cases in Hendon, of which 5 were fatal. These figures showed that small-pox had been definitely increasing in this country in the last few years from 2504 cases in 1923 to 12,922 in the year ended April 2nd, 1927, and there had been a steady increase in the death-rate from this disease. In 1914 there were 4 deaths; in 1915, 13 deaths; in 1916, 18 deaths; in 1921, 5 deaths; in 1922, 27 deaths; in 1923, 7 deaths; in the year ended March 31st, 1927, 33 deaths; and this year so far there had been 28 deaths. One also found that in 1924 there was an outbreak of small-pox in 148 separate districts in this country. That meant that we were gradually but surely advancing towards an epidemic of small-pox. Fortunately the disease had been of an exceedingly mild type, but that had made it much more difficult for the local authorities to deal with the earlier cases and to prevent the spread of the disease. He thought that the Minister of Health had a very definite responsibility in this matter, and he suggested that the Ministry were not adequately carrying out the powers conferred upon them in dealing with this danger. The Minister by his control over boards of guardians and other local authorities in health matters had a very definite power, both moral and financial. In 1924 there were only 47·5 per cent. of successful vaccinations, 37·1 per cent. of conscientious objectors, 5·4 per cent. died unvaccinated, and 0·2 per cent. were insusceptible. There was a balance of 10 per cent. unaccounted for. This 10 per cent. probably consisted of children who had escaped the meshes of the vaccination officer. They might as well put the matter quite plainly, and he blamed the Minister for not seeing that the Vaccination Act was properly carried out. Under the Act of 1898 a conscientious objector was given a chance of declaring that he conscientiously believed that vaccination would be prejudicial to the health of his child, but it was made rather difficult, because he had to appear before two justices or a stipendiary magistrate or a metropolitan magistrate in order to get an exemption certificate. The result was that the number of exemptions kept fairly steady; but in 1907 a new Vaccination Act was passed which made the procedure much more simple for the conscientious objector. The result was that in 1908 63·2 per cent. of children were successfully vaccinated, but in 1914 the figure had come down to 44·6 per cent. and in 1922 it was 40·3 per cent. One point to be noted in connexion with the statistics was that when small-pox occurred there was a larger number of successful vaccinations, but a year or two after people became less frightened and did not bother. He entirely disbelieved in these conscientious objections. In very few cases were they real. He found very often in his practice that parents who had originally stated that they had a conscientious objection were quite willing to have their children vaccinated when they wanted to emigrate to America. In a way he did not regret the attitude of certain people to vaccination because some people were so bigoted against vaccination that the only thing that would cure them was a big epidemic of small-pox with a high fatality-rate. It was a terrible thing to expect but so far as he could see it was bound to come. When the Minister found from his own statistics that things were not being properly carried out it was his bounden duty to put the law into operation and to exert pressure on the boards of guardians and local authorities. He would draw attention to some remarks in the report of the Chief Medical Officer of Health for 1925–26:—

"It is regrettable to have to record that the spread of the disease in the north-east counties was due to some extent to the failure of two sanitary authorities and their medical officers of health to take adequate steps to control the disease within that district."

Had those medical officers of health been reprimanded or dismissed? Again, had anything been done in regard to these cases:—

"One ill-administered district in the Tyneside area caused the malady to spread into eight other districts in the vicinity."

"Delay in the removal to hospital of a considerable number of cases inevitably led to the spread of the disease from the patients left at home."

If the medical officers in certain districts were neglecting their work, because that was what it came to, the Minister of Health, seeing that he paid half the salary of those officers ought to take steps to regulate the situation. He was speaking against his own profession, but no medical man had a right to undertake definite responsibilities affecting the health of the community unless he discharged his duty to the best of his ability. He recognised that in certain cases medical officers had to deal with recalcitrant local authorities or boards of guardians, but at the same time they had a definite responsibility to the community. He had suggested that Government lymph should be sold to all practitioners who desired it, because it was very pure and undoubted

the best lymph in the country. It was very successful, because in 1924 there was a case success of 99 per cent. with primary vaccinations, which was a very high percentage. His experience in practice was that it was impossible to get lymph from any firm which was comparable in any degree to Government lymph. When he became a public vaccinator and started to use Government lymph he got magnificent results with all his public cases, practically speaking never having a failure. In a short time he found his private patients coming and saying that they would rather be vaccinated with Government lymph. Vaccination was the only remedy for small-pox. It had the overwhelming support of the medical profession throughout the world. We showed ourselves the weakest country in the world in allowing conscientious objections. The sooner the people of this country realised that under strict antiseptic precautions that there was practically no danger in vaccination, but that on the contrary it would prevent small-pox, the sooner would this country get back to the happy state of affairs which existed some years ago when small-pox was practically wiped out from our midst.

Problem of the Rheumatic Child.

Dr. DRUMMOND SHIELS said that while he thought it was true to say that the medical profession as a whole still believed very strongly in the efficacy of vaccination, he also thought that there was some change of opinion in regard to infant vaccination. He had come to the conclusion seriously that the time was ripe for another inquiry into vaccination law. In some respects there was considerable laxity, enforcement was not easy, and he thought that most medical men would welcome another impartial inquiry so that the vaccination laws might be put upon a modern and proper footing. The special subject to which he wished to draw the attention of the Committee was that of the rheumatic child. This matter had been an anxiety to the medical profession for many years and recently active steps had been taken to grapple with the problem. The British Medical Association set up an expert committee in 1924, and this committee had issued two reports. The Medical Research Council had also been studying the subject and had investigated conditions in London and Glasgow. That Council had also published an interesting report. Sir George Newman and many medical officers of health had repeatedly called attention to the ravages of this disease and to its very important social and economical effects. Acute rheumatism or rheumatic fever in children was followed in a large number of cases by heart disease which, if it did not end fatally, might leave the child more or less incapacitated for the ordinary occupations of life. While there were no figures covering the whole country, it had been shown that in particular areas 10 to 15 per cent. of the children at 12 years of age were affected with rheumatism. Therefore the number in the country as a whole must be very large. It was a tragic spectacle to see these children come to adolescence carry on at ordinary work and then break down and have to go into hospital. From hospital they went back to work again, and the same process was repeated, and unless they were fortunate enough to get a very long rest, or had a very light occupation, this ended in early death. The prevention of the disease was, of course, of the first importance. Unfortunately the specific organism had not yet been discovered. Frequently the condition was associated with sore-throat, adenoids, and enlarged tonsils, and ample facilities for the treatment of these conditions were very desirable. It seemed that environment had the main effect in this disease. It rarely attacked the children of the well-to-do, and its incidence was almost entirely on poor children. The very poorest children, strange to say, did not suffer nearly so much as the class immediately above, probably because in the very humblest sections of the people there was a very drastic system of the survival of the fittest, and those who survived had a very great capacity of resistance. There was no definite feature of the environment which one could say was really the main cause of the disease. The question of housing, especially the dampness of houses, school conditions, and many other things had been investigated, but there had been nothing very definite discovered with regard to particular items of environment. There was also no convincing evidence of heredity in connexion with this disease, the similarity of environment and contagion accounting for the cases which appeared to suggest heredity as a factor. He trusted that the Minister would encourage the Medical Research Council to go forward with research into this disease, for until they discovered the specific cause they would not be able to have effective prevention, which was what they most sought. Until they had that prevention they must make all necessary arrangements for dealing with those who actually had the disease. Not only were medical men and those bodies he had mentioned taking a keen interest in this matter, but he was glad to notice that London was giving a very good lead to the country. He thought it was to the credit of the London County Council and the Metropolitan Asylums Board that they had given this lead to the whole country by the provision of special hospital accommodation for cases of acute rheumatism. The London County Council, when deciding this matter, had 1500 cases of children absent from school on account of these rheumatic conditions. They had conferences with the Metropolitan Asylums Board and the Ministry of Health, and the latter first sanctioned the provision of 60 beds, then 16, and he understood that 350 more were at present being arranged for at Carshalton. It was estimated that no less than 10,000 children in London were suffering from these conditions, and that implied 25 per cent. of chronic invalidity. Surely it was only humane and wise to deal with this matter as the London County Council were dealing with it.

Special Rest Homes.

This disease could only be effectively dealt with by establishing the special rest homes which the Council were setting up, because the interesting point about this condition was that when it arose if sufficient rest was available, and the child was not hurried back into activity prematurely, there was an excellent chance of its escaping the development of heart disease, and the consequent permanent incapacity. While this was the position in London, he would like to ask the Ministry of Health what was the position in the provinces. Were the local authorities being urged to provide similar treatment? Many local authorities had not the facilities or the accommodation except in connexion with isolation hospitals, which were not particularly suitable for this purpose. Many of them had no money to spend in providing new accommodation, and a large number of these cases had to be treated throughout the provinces in voluntary hospitals, either those for sick children or general hospitals. A few years ago the Ministry granted £500,000 to voluntary hospitals. While they awaited some satisfactory method of dealing with voluntary hospitals he would like to know if the Minister of Health had considered, or would be prepared to do so, the giving of a grant earmarked for these cases to enable the provincial hospitals to provide extra accommodation of this special kind? It could not be too often emphasised that the percentage of cases developing heart disease could be greatly reduced. There were good authorities who declared that at present 50 per cent. of cases of acute rheumatism in children developed heart disease, and that figure must be greatly brought down. Another suggestion had been made that this disease should be made notifiable. It was well-known that in all matters of research statistics were most important, and these particulars were difficult to get unless the diseases were notifiable. Hospitals should arrange with local medical practitioners for the after-care of these children when they left hospital. He would like to see this subject linked up with the orthopædic treatment of children. In this matter the Minister of Health had been coöperating with county and county borough authorities. The treatment of orthopædic cases was that of those who were externally disabled, while the acute rheumatic children were correspondingly internally disabled. It had been estimated by the best orthopædic authorities—they must pay a tribute to Sir Robert Jones for the work which he had done on this subject—that 85 per cent. of these disabled children, many of whom were put into cripples' homes and stayed there all their lives or languished at home, a burden to themselves and to the community, could be rendered capable of self-support if taken in hand soon enough and given the wonderful surgical treatment which was now available from orthopædic surgeons. He would also like to say a word or two in regard to maternal mortality. It was certainly a very difficult problem, and it was not altogether easy to understand why the figures remained as they did. He thought they must agree, however, that the prenatal condition of the mother had a great deal to do not only with the maternal mortality but with the infantile mortality. The larger individual causes of infantile mortality were premature birth and congenital debility. Greater attention to the antenatal condition of the mother, and especially to seeing that she had adequate nourishment, would almost certainly help to diminish maternal mortality. They had managed to reduce practically all other mortality figures so much that it was unfortunate that on this one point they seemed to have failed. They had not yet got the whole reasons, though they knew many of the contributory causes. In regard to cancer he would like to ask the Minister what he thought about publicity. Some local authorities in this country—and in America this has been done to a very great extent—had launched a publicity campaign pointing out to their citizens the early symptoms of cancer and telling them in simple language what were the first signs, and emphasising the ease with which a cure can be secured if early treatment is sought. Some people said that it would spread a fear of cancer and do more harm than good, but that was not the belief of the surgeons, or of the people who were most in contact with this disease, and it had not been the experience of the local authorities when it had been tried. It was very desirable that this

country should make, as it was able to make, a good contribution to the international common pool of health activity at Geneva, because they had amidst all the other rivalries of the nations and the sordid competitions of the different peoples this noble rivalry and competition—the rivalry to contribute the most possible to the store of knowledge of the laws of health.

After further debate,

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) said that he had not time that night to reply to the many interesting points raised in the debate. He wished to make one observation on the hospital for post-graduate medical education, because he did not want Dr. Davies, who he knew had great influence, or any other member, to think that there was any foundation for the idea that this was to be a State institution. As a matter of fact the institution was already acting under the auspices of a committee of which the President of the Royal College of Surgeons, the President of the Royal College of Physicians, the representatives of the chief medical schools, and leading members of the medical profession like Lord Dawson, were members. This institution would be in the same position as the others, and there was no intention to start a State institution of the kind.

The further discussion of the vote was adjourned.

Committee on Solicitation Laws.

Viscountess ASTOR asked the Secretary of State for the Home Department if the promised committee of inquiry on the Solicitation Laws had yet been appointed.—Capt. HACKING (Under Secretary for the Home Office) replied: It is proposed that the terms of reference of this committee shall be to inquire into the law and practice regarding offences against the criminal law in connexion with prostitution and solicitation for immoral purposes in streets and public places and other similar offences against decency and good order, and to report what changes (if any) are in their opinion desirable. My right hon. friend hopes to complete at an early date the selection of members to serve on this committee.

THURSDAY, JUNE 30TH.

Vaccination Leaflets in Schools.

Mr. GROVES asked the President of the Board of Education whether his attention had been called to the action of the local education authority in Monmouthshire in distributing a four-page leaflet, printed and published by an insurance company, advocating vaccination in the local schools, and whether, in view of the fact that propaganda on controversial subjects had not been allowed by the Board to be introduced into the schools which received Government grants, he would instruct the local authority to refrain from circulating leaflets of this nature.—Lord EUSTACE PERCY replied: I am in communication with the local authority in regard to this matter.

Stagnant Pools and Mosquito Breeding.

Mr. DAY asked the Minister of Health whether, in view of the inconvenience and annoyance suffered by the public through certain ditches in the country becoming silted up and overgrown, causing a breeding place for mosquitoes and other insects, he will give instructions to all local authorities and owners of land containing such stagnant pools to be compelled under the Public Health Act to have these places cleaned out and sprayed with an adequate insecticide.—Mr. CHAMBERLAIN replied: I have no authority to give such instructions. Under Section 91 of the Public Health Act, 1875, any pool, ditch, &c., in such a state as to be a nuisance or injurious to health is to be deemed a nuisance liable to be dealt with under the Act. The question whether any particular pool is a nuisance is one of fact to be determined by the court in any proceedings instituted under the Section.

Model By-Laws for Hop-Picking Areas.

Mr. BRIANT asked the Minister of Health how many district councils had adopted the model by-laws issued early in 1926 for the better regulation of hop-picking areas.—Mr. CHAMBERLAIN replied: Eleven councils have made by-laws based on the new model.

Quarantine for Imported Dogs.

Lord APSLEY asked the Minister of Agriculture whether, seeing that the maximum period of incubation of any disease, including rabies, in dogs was two months, he would consider the reduction of the present period of six months' quarantine in certain establishments approved by his department of dogs taken from England, but brought back by their owners, on the ground that many of the latter could not, owing to financial circumstances, afford to pay the necessary charges for this period.—Mr. GUINNESS replied: My noble friend is in error as to the maximum incubation period of rabies, as dogs from abroad have developed rabies from three to five and a half months after they have arrived at quarantine stations in this country. I do not consider that inability to pay the necessary quarantine charges would justify me in reducing the period of quarantine and thereby adding very considerably to the risk of the introduction of such a terrible disease into this country.

Insanitary Slums in Glasgow.

Mr. ERNEST BROWN asked the Secretary of State for Scotland if his attention had been drawn to the Eighth Annual Report of the Scottish Board of Health, and, in particular, to Chapter 2, paragraph 16, as to the insanitary condition in Glasgow slums, and if any action had been taken on this report or, if not, if the Board of Health contemplated immediate action to deal with these conditions.—Sir JOHN GILMOUR replied: I am aware of the terms of the paragraph in question. As indicated therein it is a quotation from the report of the Commissioner appointed by the Scottish Board of Health to inquire into an improvement scheme submitted by the corporation of Glasgow under Part II. of the Housing (Scotland) Act, 1925. Details of the corporation's proposals for dealing with the areas to which the Commissioner's report refers will be found in paragraph 15 of the report. The improvement scheme has now been confirmed by the Board, and the local authority are in course of carrying out its provisions, which include the demolition and clearing away of the insanitary properties and the provision of new dwellings to rehouse the dispossessed tenants.

FRIDAY, JULY 1ST.

Ex-Service Men and Medical Treatment.

Mr. DAY asked the Minister of Pensions how many wounded men were still undergoing treatment as a result of the late war.—Major TRYON replied: The number of men suffering from wounds or injuries, as distinct from other classes of disability, who may be undergoing treatment are not separately recorded, but I may say that at the end of May 5000 officers and men were in receipt of surgical treatment of one kind or another.

MONDAY, JULY 4TH.

Colonial Scientific Research.

Captain CROOKSHANK asked the Secretary of State for the Colonies whether any action was being taken towards creating a single Colonial scientific and research service as recommended in the report submitted by Lord Lovat and his colleagues to the recent Colonial Office conference.—Mr. AMERY replied: As my hon. and gallant friend will recollect, the committee of the Colonial Office Conference, over which Lord Lovat presided, while recommending the ultimate creation of a single colonial research service, recognised that the natural method of growth of such a service was the organisation, in the first instance, of workers in the various fields of science into separate services. I have already appointed a committee in accordance with the recommendation referred to by my hon. and gallant friend to formulate practical proposals, for submission to Colonial Governments, to give effect to the resolution of the Colonial Office Conference, on the subject of a Colonial agricultural research service, and it is proposed that the recently appointed Colonial Medical Research Committee should, as one of its first tasks, consider the organisation of a Colonial medical research service. I may also say that steps are now being taken to set up another committee to inquire into the present condition of the Colonial veterinary services. This committee will no doubt consider the possibility of establishing a veterinary research service common to all the colonies protectorates, &c. As regards forestry, I propose to defer consideration of the question of constituting a Colonial forestry research service until after the meeting of the Empire Forestry Conference, to be held at Melbourne in 1928.

Illicit Importation of Drugs.

Sir ROBERT THOMAS asked the Secretary of State for the Home Department whether the illicit importation of drugs into this country had increased since the war; from what countries they were principally introduced; and whether there had been any recent arrests for this offence.—Sir W. JOYNSON-HICKS replied: No, Sir. While it is not possible to speak positively in a matter of this kind, all our experience goes to show that the illicit importation of dangerous drugs has diminished since the passing of the Dangerous Drugs Act of 1920. No arrest of any importance has been made this year. I shall be happy to send the hon. Member—as soon as it is available—a copy of the report made by His Majesty's Government to the League of Nations on the control of the drug traffic in respect of 1926, which contains a table giving particulars of all cases during the year in which seizures were made.

Indian Medical Service.

Sir RICHARD LUCE asked the Under Secretary of State for India how many European and how many Indian medical officers, respectively, had entered and retired from the

Indian Medical Service in each of the years 1923, 1924, 1925, 1926, and 1927; what was the total number of each category now serving; and what was the proportion of Europeans to Indians that was considered requisite for the satisfactory working of the service in the military and civil branches, respectively.—Earl WINTERTON replied: The table below shows the recruitment of, and casualties among, permanent officers of the Indian Medical Service during the years 1923–27.

Year.	Recruitment.		Casualties from all causes—i.e., retirements on pension, deaths, removals, and resignations.	
	European.	Indian.	European.	Indian.
1923	17	—	41	4
1924	21	—	17	1
1925	11	10	31	1
1926	12	3	29	3
1927 to date	12	2	16	1

According to the latest Army list there are now 489 British and 158 Indian officers holding permanent commissions in the Indian Medical Service. The ratio of approximately one Indian to two European officers has been accepted for both the civil and the military sides of the Indian Medical Service.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JUNE 25TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 259 (last week 219); scarlet fever, 1553; diphtheria, 725; enteric fever, 95; pneumonia, 913; puerperal fever, 42; puerperal pyrexia, 115; cerebro-spinal fever, 4; acute poliomyelitis, 6; acute polioencephalitis, 1; encephalitis lethargica, 33; dysentery, 2; ophthalmia neonatorum, 109. There were no cases of cholera, plague, or typhus fever notified during the week.

Cases of small-pox were notified from the counties of Derby 4 (Derby C.B.), Durham 126, Lancaster 16, Northampton 1 (Northampton C.B.), Northumberland 19, Stafford 7 (Burton-on-Trent), Yorks, West Riding 39, Glamorgan 8 (Cardiff 2, Merthyr Tydfil 1, Gelligaer 5), and Monmouth 39. None was returned from London, Kent, Middlesex, Nottingham, Southampton, North Riding of Yorkshire, or the City of York.

Deaths.—In the aggregate of great towns, including London, there were no deaths from small-pox, (0) from enteric fever, 30 (1) from measles, 4 (0) from scarlet fever, 19 (8) from whooping-cough, 17 (4) from diphtheria, 39 (3) from diarrhœa and enteritis under two years, and 33 (3) from influenza. The figures in parentheses are those for London itself.

INDEX TO "THE LANCET," VOL. I., 1927.

THE Index and Title-page to Vol. I., 1927, which was completed with the issue of June 25th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

A CENTRAL CRIPPLES' HOSPITAL FOR EDINBURGH.—Considerable progress was reported at a recent meeting in connexion with the £75,000 scheme for a Central Cripples' Hospital for Edinburgh and the south-eastern area of Scotland. At least 3000 more beds are required in the Scottish hospitals which are burdened with long waiting-lists, but could the present scheme mature, the crippled child will be assisted elsewhere and thus relieve the pressure on hospital beds. Sir David Wallace pointed out that not only the need existed for early surgical treatment, but also facilities for continuity of treatment.

Medical News.

UNIVERSITY OF OXFORD: *Schorstein Research Fellowship.*—The Board of the Faculty of Medicine has elected Jean Orr-Ewing, M.A., B.M., Lady Margaret Hall, to the Schorstein Research Fellowship in Medical Science for two years from Oct. 1st, 1927. Miss Orr-Ewing has been engaged in pathological research in the University for several years past, and intends to continue her investigations in the Sir William Dunn School of Pathology.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—At an extraordinary meeting of the College held on June 14th it was decided, in celebration of the Lister centenary, to confer the Honorary Fellowship of the College upon the Earl of Balfour; Sir John Rose Bradford, P.R.C.P. Lond., F.R.S.; Sir Hector Cameron; Mr. Neville Chamberlain, Minister of Health; Sir William Watson Cheyne; Sir David Ferrier, F.R.S.; Sir John Gilmour, Secretary for Scotland; Dr. Thorvald Madsen, Director of the Statens Seruminstitut at Copenhagen; and Dr. Arthur Logan Turner, P.R.C.S. Edin.

UNIVERSITY OF BIRMINGHAM.—At recent examinations the following have been successful:—

L.D.S.—C. T. Morgan, A. H. Bosworth, S. L. Barnacle, W. H. Brown, W. L. Eccleston, B. H. Johnson, R. E. Morgan, G. Simons, A. T. Wynne.

UNIVERSITY OF SHEFFIELD.—At the undermentioned examinations held recently in the Faculty of Medicine the following candidates were successful:—

M.D.—Harry N. Green.

Final M.B., Ch.B.—With Honours: Class II., William L. Rowe. Ordinary: Dorothy Brown, Bernard Graham, Donald H. Lockwood, Philip G. Preston, and William G. P. Wells.

UNIVERSITY OF DUBLIN: SCHOOL OF PHYSIC, TRINITY COLLEGE.—At recent examinations the following candidates were successful:—

FINAL MEDICAL EXAMINATION.

Part I., Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Pathology and Bacteriology.—*Frederick G. Stewart, Nora A. Stack, John Beggs, Josephine M. Enright, Marie M. E. Lea-Wilson, Louis L. Griffiths, Everest S. Adderley, Eric F. St. J. Lyburn, Patrick O'Shea, Geoffrey B. Thrift, William A. Y. Knight, John Willoughby, Eric C. Hicks, and John T. M'Ginn.

Part II., Medicine.—*Terence J. Millin, Solomon Behr, Robert R. Woods, Thomas C. M. Corbet, Gilbert M. Smith, Paul M. Garry, Thomas J. O'Reilly, Joseph A. K. FitzGerald, Richard M. Moore, George M'Donald, Lenox R. S. MacFarlane, Ethel M. Weir, Isidore Isaacson, John K. Harper, William P. Culbertson, Arthur R. Gray, Claud E. G. Nunns, and Izaak le Roux.

Surgery.—*Terence J. Millin, Thomas C. M. Corbet, Wilfred F. Lane, Robert A. Q. O'Meara, Maurice F. N. Griffin, Robert S. F. Hennessey, Maximilian Gerber, Thomas J. O'Reilly, Norah W. Brown, Myer Hoffman, Robert D. Whiteacre, Patrick Brangan, Charles L. Day, Norman J. U. Mather, George Q. Chance, Donal B. O'Sullivan-Beare, Samuel R. Elmes, Shirley D. K. Roberts, Ralph W. T. H. Stewart, Cecil F. Cope, Desmond Blewitt, John O. Bennett, Samuel B. Dalrymple, Edward M. Gamble, Hubert C. Weir, Lenox R. S. MacFarlane, William P. Culbertson, Norah E. Fenton, James J. FitzGerald, and Joseph A. K. FitzGerald.

Midwifery.—*William J. E. Jessop, *Evan K. Malone, *Kenneth Watson, David M'M. Carson, Ernest du Plessis Meiring, John J. O'Dwyer, Denis S. P. Wilson, Robert D. Whiteacre, Leslie R. H. Keatinge, and Nathaniel Burstein.

FINAL DENTAL EXAMINATION.

Dental Surgery and Pathology; Dental Mechanics and Metallurgy; Orthodontics.—Andrew A. Gardner, Thomas J. L. Stafford, and Gertrude G. Hill.

* Passed on high marks.

UNIVERSITY OF DURHAM.—At a convocation held in Durham on June 28th Sir James Berry received the degree of D.C.L. Honoris Causa. He was presented by Mr. G. Grey Turner, who has been recently appointed to the Chair of Surgery.

Other recent appointments at the College of Medicine, Newcastle, are as follows:—Sir Thomas Oliver: Emeritus Professor of Medicine. Prof. H. Brunton Angus: Emeritus Professor of Surgery. Dr. Thomas Beattie: Professor of Medicine.

MINERS' CONVALESCENT HOME.—On June 28th the Prince of Wales formally opened the Lancashire and Cheshire Miners' Convalescent Home at Bispham, a northern suburb of Blackpool. The home was built with part of the proceeds of the Miners' Welfare Fund, and cost about £150,000.

UNIVERSITY OF GLASGOW.—The Harry Stewart Hutchison prize of £50 for writings embodying original research work in a branch of medical science relating to children has been awarded to Dr. Robert Cruickshank for an essay on the Intestinal Flora of Infants and Young Children in Health and Disease. The Macewen medal in surgery has been awarded to Dr. Marion W. Gray.—On July 1st the degree of M.D. was conferred on Thomas Walter Hill for a thesis on the Significance of Caloric Labyrinthine Stimulation in the Diagnosis, Prognosis, and Treatment of Certain Pathological Conditions.

SHANTUNG CHRISTIAN UNIVERSITY, TSINAN-FU, CHINA.—Dr. Harold Balme, who has been President of the University since 1921, has, for family reasons, resigned his position. Dr. Balme went to China as a medical missionary in 1906, and became professor of surgery at Shantung University in 1912. He has been chairman of the Council on Medical Education of the China Medical Missionary Association, and was first President of the China Association for Christian Higher Education. He was also vice-chairman of the National Christian Council of China, and the author of "China and Modern Medicine," and other books. His resignation was accepted by the British section of the Board of Governors with great regret.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.—The annual general meeting of this society will be held at 11, Chandos-street, London, W., on Friday, July 15th, at 8.30 P.M., when Dr. D. Nabarro will read a paper on Some Problems Associated with the Transmission of Syphilis to the Second and Third Generation. A discussion will follow.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.—An American meeting of this society will be held at the house of the British Medical Association, Tavistock-square, on July 11th, at 3 P.M., when a discussion will take place on the possibility of closer coöperation between the society and fellow-workers on the American continent. Dr. Eugene L. Opie, of the Henry Phipps Institute, Philadelphia, will read a paper on Latent Tuberculosis and its Relation to Manifest Disease, and Dr. H. Longstreet Taylor, President of the National Association for the Prevention of Tuberculosis in America, will give a lantern demonstration on Sanatorium Treatment in Cold Climates.

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.—The eighth annual general meeting of this society was held at 143, Harley-street, London, W., on June 28th, Sir Basil Peto, M.P., President, being in the chair. The following resolution was carried unanimously:—

"That this meeting desires to call the attention of the Minister of Health and the public to the facts:—

"(1) That recently a man was sentenced in Manchester to six weeks' imprisonment for selling printed information similar to that distributed by this Society.

"(2) That the man had sold similar printed information in other districts without prosecution and with the unofficial approval of medical officers of health and military commanding officers.

"(3) That the information supplied by this man was similar to that which is quite legally distributed by certain local authorities.

"(4) That the methods of prevention described were those which have been officially taught and successfully practised in the Navy, Army, and elsewhere.

"(5) That the above facts illustrate the present contradictory and deplorable legal position.

"(6) That in view of the prevalence of venereal disease and its disastrous results on national efficiency and the great cost of the present method of dealing with it only by curative and not preventative methods, as well as of the above facts the Society for the Prevention of Venereal Disease calls upon the Ministry of Health to amend the Venereal Disease Act, 1917, so as to give effect to the recommendation contained in Clause 14 of the Report of the Departmental Committee of Inquiry held under the chairmanship of Lord Trevethin in 1923,

"'That the law should be altered so as to permit properly qualified chemists to sell *ad hoc* disinfectants provided such disinfectants are sold in a form approved and with instructions for use approved by some competent authority.'"

Dr. J. H. Sequeira stated his belief that there was at the present time an increase in venereal disease, due, in his opinion, to the fact that a post-war generation had arisen which had not received instruction in disinfection. Sir James Crichton-Browne said that Great Britain, although maintaining her position in preventive medicine generally, was falling behind the other nations of the world in regard to the prevention of venereal disease. He pointed out the remarkable position that the hon. secretary of the society was giving lectures to prisoners at one of the large prisons at the invitation of the prison authorities and imparting scientific information, while one of his audience might possibly be undergoing sentence in that very prison for imparting similar information in leaflet form to the public outside.

THE King has confirmed the appointment of Dr. N. L. Clarke as a nominated unofficial member of the Legislative Council of the Straits Settlements.

NEW PATHOLOGICAL LABORATORY AND RESEARCH INSTITUTE.—On Tuesday, July 19th, at 3 P.M., Mr. Neville Chamberlain, Minister of Health, will open the new pathological laboratory and research institute which is a gift to the City of London Hospital for Diseases of the Heart and Lungs, Victoria-park, E. 2, from the Prudential Assurance Company. The ceremony will be succeeded by a garden party to meet the Lady Maud Carnegie, President of the Ladies' Association of the hospital.

BRITISH PATHOLOGISTS' ASSOCIATION.—The summer meeting will be held in London on July 15th, beginning at 10 A.M., at the National Hospital, Queen-square, when the following papers will be given:—Dr. J. G. Greenfield: The Clinical Pathology of the Cerebro-Spinal Fluid; Dr. F. B. Smith: Significance of the Relationship of Total Chlorides and Free Acid in Gastric Contents; Dr. A. Renshaw: The Economics of Laboratory Administration; Dr. S. C. Dyke: The Determination of Compatibility in Blood Donors; Dr. E. Wordley: Observations on Fibro-Sarcomata of Bone with Illustrative Specimens; Dr. A. D. Fraser: Endometriomata with Illustrative Specimens. In the afternoon demonstrations at the Pathological Laboratory, National Hospital, will be given by Dr. J. G. Greenfield, Mr. Anderson, and Dr. G. Hadfield; and at the Hospital for Sick Children, Great Ormond-street by Dr. D. Nabarro, Dr. D. McClean, Dr. W. W. Payne, and Dr. H. Archer. At 5 P.M. a general meeting will be held at the B.M.A. House, Tavistock-square, Dr. C. Powell White presiding, when a discussion on Progress and Future Policy will be opened by the Chairman and Dr. J. G. Greenfield. At 6.15 P.M. at the same place Sir Thomas Horder will give an address on the Need of Standardisation in Clinical Pathology.

SOCIETY OF BRITISH NEUROLOGICAL SURGEONS.—The second meeting of this newly formed society was held in Manchester on June 24th and 25th, under the Presidency of Sir Charles Ballance. The recently elected associate members were admitted by the President. In addition to a full attendance of members and associates Prof. Harvey Cushing was present and took part in the discussions. On the first morning Mr. Geoffrey Jefferson operated upon a case of neuralgia, dividing the sensory root of the Gasserian ganglion, and then exhibited a number of cases as a basis of general discussion. In the afternoon Prof. Shaw Dunn made some observations on a series of intracranial aneurysms, pointing out how commonly they were the cause of fatal intradural (subarachnoid) hæmorrhage. But he insisted that unless they were carefully searched for and the clot faithfully removed they were very apt to be overlooked. Mr. Wilfred Trotter followed by giving his reflections on the surgical treatment of some of the larger intracranial aneurysms, which were, he said, not uncommon and were being recognised clinically rather more often than formerly. Mr. Percy Sargent read a paper on two cases of angioma of the pia arachnoid cerebri, giving an account of the clinical findings in his cases, the operative appearances, and the after-histories. He discussed the difficult question of correct pathological grouping, and Prof. Dunn described the histology of a case he had met with. Dr. N. D. Royle gave an address, based on a series of cinematograph films, on the effects of sympathetic ramisectomy in cases of spastic paralysis. In many of these a striking improvement was apparent, but it was suggested that similar results could be obtained by older-established orthopædic measures. Dr. Royle thought that much more rapid improvement took place after ramisectomy, and declared that unless vascular changes were noted in the limb after operation it could not be held that a proper sympathectomy had been performed. On the morning of June 25th, after Dr. Stewart had described briefly his work on the innervation of the teeth, Dr. Arthur Hall gave an exposition of the reflexes controlling posture. He defined clearly the meaning of Magnus's nomenclature and illustrated several of the tonic reflexes by means of cinematograph films, models, and diagrams. Mr. Cecil Calvert gave an account of two cases of cerebral tumour attempting to account for the localised pain, of which they had complained by reference to the innervation of the dura. Mr. Morris showed the anatomy of the Haertel method of injecting the Gasserian ganglion, and of a slight but important alteration in the site and traject of puncture. He believed that the injection material tended to run back into the root of the ganglion, and gave permanently satisfactory results. In discussion members mentioned the serious results which sometimes followed these injections but Mr. Morris stated that he had not seen them, though transient palsy of the abducens sometimes occurred. Keratitis was rarely severe.

PRESCRIBING BY INSURANCE PRACTITIONERS.—At an emergency meeting of the executive committee of the Kent Local Medical and Panel Committees, held on June 29th at Canterbury, the proposed new agreement between the Ministry of Health and chemists as to prescribing by insurance practitioners was discussed. A resolution was passed to the effect: That the proposed arrangement which would make it possible and financially profitable for chemists to limit the quality and quantity of medicines prescribed for insured persons is contrary to public policy and must be resisted by every possible means.

MEMORIAL TO A MEDICAL MAN.—On June 29th the town of Blackpool honoured the memory of William Henry Cocker, L.S.A., M.R.C.S. Eng., J.P., the first Mayor and Honorary Freeman of the borough, when a memorial four-sided clock tower 85 feet in height was unveiled in the Stanley Park. Dr. Cocker was born in 1836 and died in 1911 at the age of 74. He was one of the pioneers of Blackpool who did much to found and establish the town as one of the most prominent seaside health resorts in the kingdom. He rendered eminent services to the municipality, was elected mayor on six occasions, and was a member of the town council for 36 years.

INSANITARY SCHOOL BUILDINGS IN IRELAND.—At a public meeting of national school teachers held at Naas, County Kildare, last week, attention was drawn by more than one speaker to the insanitary condition of many of the school buildings, and its ill-effect on the health of the pupils. One teacher stated that much of the ill-health of after years had its origin in the hovels which passed for school-rooms in so many parts of the country.

Many of those rooms, he said, were structurally unhygienic and dangerously insanitary. They were veritable death-traps. Many of them were built 70 or 80 years ago during the experimental stage of Irish primary education, when the science of hygiene was unknown in Ireland, and when the provision of a roof and walls was considered the acme of comfort. Bad as were the structural defects of some of the schools, their danger to health was insignificant compared with the situation and condition of the out-offices which violated not only the laws of health, but even the laws of common decency. Medical inspection of school-children, he held, would inevitably go far to remedy the existing state of affairs.

It is satisfactory to find, our correspondent remarks, that the teachers throughout the country are the most active in pressing for medical inspection of school-children to be carried out.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, July 11th, to SATURDAY, July 16th.—FELLOWSHIP OF MEDICINE DEMONSTRATIONS. Tues., 2.30 P.M., at In-Patient Department, St. John's Hospital for Diseases of the Skin, Uxbridge-road, W. Demonstration by Dr. A. C. Roxburgh. Fri., 10 A.M., at Central London Throat, Nose, and Ear Hospital, demonstration by Mr. Archer Ryland. Those desirous of being present at this demonstration please notify hospital—Museum 1539. Fri., at 5 P.M., at Royal Westminster Ophthalmic Hospital, lecture, Epiphora, by Mr. G. Viner. These demonstrations are free to all members of the medical profession.—NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's Hospital, Tottenham, N.—Vacation Course—all day, 10.30 A.M. to 5.30 P.M. 4.30 P.M., lectures free to members of the Fellowship of Medicine.—ST. MARK'S HOSPITAL FOR DISEASES OF THE RECTUM, City-road, E.C. Special course in Proctology for one week.—PARK HOSPITAL, Hither Green, S.E. Course in Infectious Fevers. Wed., 2.30 P.M., and Sat., at 11 A.M.—WEST-END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Lecture-demonstrations at 5 P.M., daily throughout the month. Further information from the Secretary.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, July 11th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M., to 5 P.M. Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, July 14th.—4 P.M., Dr. Nabarro: Vaccine Therapy.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, July 11th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Donald Armour: Operations.

TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 3 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology, 2 P.M., Mr. Gibb: Eye Department.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Sir Henry Simson: Gynæcological Ward.

FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Operations. Mr. Vlasto: Throat, Nose and Ear Department.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward Visit. 10 A.M., Dr. Owen: Medical Diseases of Children.

Operations, Medical, Surgical, and Special Out-patients, daily, 10 A.M. to 5 P.M.; Saturdays, 10 A.M. to 1 P.M.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, July 12th.—3.15 P.M., Mr. Kenneth M. Walker: Recent Advances in the Diagnosis and Treatment of Genito-Urinary Disease.

Appointments.

THOMPSON, A. G. G., M.D. Camb., D.P.H., has been appointed, Medical Officer for Lambeth.

London School of Dermatology, St. John's Hospital for Diseases of the Skin: DRAKE, J. A., M.D. Lond., and O'DONOVAN, W. J., M.D. Lond., Lecturers.

Manchester Royal Infirmary: LINFORD, H., M.B. Manch., Resident Junior Assistant House Surgeon (Central Branch); GRAY, E. D., M.B. Lond., Junior Assistant Medical Officer, Radiological Department; LEIGHT, A. T., M.B. Manch., Anæsthetist (Central Branch); SMIRK, F. H., M.D. Manch., Medical Registrar; LAMBERT, V. F., F.R.C.S. Edin., Assistant Surgical Officer Aural Department; ASHCROFT, G. V., M.D. Manch., M.R.C.P. Lond., D.P.H., Assistant Medical Officer.

Certifying Surgeons under the Factory and Workshop Acts: CAMERON, I. M., M.B., Ch.B. Edin. (Tarbert District of the County of Argyll); WIGFIELD, F. P., M.B., B.S. Durh. (Buntingford District of the County of Hertford.)

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—Asst. H.S. £130.

Birmingham and Midland Eye Hospital, Church-street.—Physico-Therapist to Ultra-Violet Ray Dept. £100.

Bodmin, Cornwall County Mental Hospital.—Asst. M.O. £350.

Bradford, Royal Eye and Ear Hospital.—Res. H.S. £120.

Brighton, Royal Alexandra Hosp. for Sick Children.—H.P. £100.

Bristol Union.—Demonstrations in Pathology. £400.

Cardiff City Mental Hospital, Whitchurch, near Cardiff.—Second Asst. M.O. £350.

Central London Throat, Nose, and Ear Hospital, Gray's Inn-road, W.C.—Res. H.S. £75.

City of London Hospital for Diseases of the Heart, &c., Victoria Park, E.—H.P. At rate of £100.

Coventry and Warwickshire Hospital.—Hon. Asst. Surg.

Croydon County Borough.—Asst. M.O.H. and Asst. School M.O. £600.

Doncaster County Borough.—Asst. M.O.H. and Tub. O. £600.

Edinburgh University.—Chair of Medicine.

Evelina Hospital for Children, S.E.—Masseuse. £160. H.S. £120.

General Lying-in Hospital, York-road, Lambeth, S.E.—Registrar.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—H.P. £50 for six months.

Huddersfield Royal Infirmary.—Jun. H.S. £150.

Ilford Borough.—Chief Asst. M.O.H. £700.

Indian Medical Service.—Appointments.

Kensington Royal Borough Tuberculosis Dispensary.—Honorarium 35 guineas.

Kent Education Committee.—School M.O. £600.

Leeds City Sanatorium, Gateforth.—Res. M.O. £400.

Leeds General Infirmary.—Hon. Phys.

Manchester, Ancoats Hospital.—Pathological Registrar. At rate of £100. H.P. At rate of £100.

Manchester City.—Asst. Tuberculosis Officer. £650.

Manchester, St. Mary's Hospitals.—Two H.S.'s. Each at rate of £50.

Margate, Royal Sea Bathing Hospital.—Two H.S. At rate of £200.

Metropolitan Asylums Board.—Second Asst. M.O. £500. Jun. Asst. M.O. £500.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Hon. Asst. Gynæcologist. Cas. O. £150. H.S. £125.

National Association for the Prevention of Tuberculosis.—Asst. Medical Commissioner. £700.

New Delhi, India, Lady Hardinge Medical College.—Clin. Pathologist. Rs.450 per mensem.

Port Talbot, Borough of.—M.O.H. and Sch. M.O. £800.

Royal Army Medical Corps.—Commissions.

Royal Free Hospital, Gray's Inn-road, W.C.—Hon. Anæsthetist. Also Cas. O. £150.
Royal Northern Hospital, Holloway, N.—Surg. to Ear, Nose, and Throat Dept. Also P.
Royal Waterloo Hospital for Children and Women.—Hon. Radiologist. Hon. Gynæcologist.
Samaritan Free Hospital for Women.—Hon. Surg.
Sheffield Royal Hospital.—Resident Anæsthetist. Res. Ophth. H.S. £80 each.
Sheffield Royal Infirmary.—Ophth. H.S. At rate of £80. Also Hon. Asst. Ophth. S.
Sunderland County Borough.—Asst. M.O. for Maternity and Child Welfare. £600.
Swansea County Borough.—Asst. M.O. £600.
West End Hospital for Nervous Diseases, Welbeck-street, W.—Hon. Reg.
West London Hospital, Hammersmith-road, W.—Res. Asst. S. £200.
Westminster Hospital.—Surg. Registrar. £150. Medical Registrar. £150.
Willesden General Hospital, Harlesden-road, N.W.—Phys. in Charge of Dept. for Dis. of Skin. Also H.S. At rate of £100.
Wolverhampton and Staffs Hospital.—H.S. At rate of £150. Also Hon. Surg.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Market Rasen (Lincolnshire). Bognor (Sussex); and at Aylesbury (Buckinghamshire).

Births, Marriages, and Deaths.

BIRTHS.

BESWICK.—On June 26th, at Goldsytch House, Mill Hill, N.W., the wife of Wilfrid Beswick, M.D., of a son.
DUCKWORTH.—On July 2nd, at South Parade, W., the wife of J. E. H. Duckworth, M.C., L.D.S. R.C.S., Eng., of a son.
GERARD-PEARSE.—On June 29th, at Somerset House, Weymouth, the wife of John Gerard-Pearse, F.R.C.S., of a son.
HUME.—On July 2nd, at 41, Southway, N.W. 11, the wife of J. Basil Hume, M.S., F.R.C.S., of a daughter.
MOODY.—On July 1st, at Bournemouth, the wife of Dr. A. J. Moody, of a daughter.

MARRIAGES.

CROOK—WILLMORE.—On June 27th, at St. Joseph's Church, Nympsfield, Glos., Bertram Austin Crook, M.B., Ch.B., M.R.C.S., L.R.C.P., of Paulton, Somerset, to Kathleen Marjorie Willmore, M.B., Ch.B., of Wotton-under-Edge.
GIBSON—ELLERTON.—On June 28th, at Holy Trinity, Sloane-street, Paul Currey Gibson, M.D., M.R.C.P., to Margaret, daughter of the Rev. F. G. Ellerton, Vicar of Tardebigge, and of Mrs. Ellerton.

DEATHS.

BRYAN.—On June 27th, at Fairfax-road, Chiswick, Edward Bryan, M.R.C.S., L.R.C.P., in his 85th year.
DAWSON.—On June 27th, at Queen-street, Edinburgh, James Walker Dawson, M.D., D.Sc., F.R.C.P.E. and F.R.C.S.E., aged 57.
DREAPER.—On June 28th, at the Royal Naval Hospital, Haslar, Gosport, Surgeon Rear-Admiral (retd.) George Albert Dreaper, C.B., K.H.S.
HIGGINSON.—On June 26th, at a nursing home, after an operation, Charles Gaskell Higginson, M.D., M.A., of Portland-road, Edgbaston, aged 68.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

MEMORIAL TO DAME LOUISA ALDRICH-BLAKE.—On July 5th Sir William Beveridge, Vice-Chancellor of the University of London, unveiled a memorial to Dame Louisa Aldrich-Blake in Tavistock-square-gardens. The memorial was designed by Sir Edwin Lutyens. On either side are bronze busts by Mr. Arthur Walker, based on the portrait of Dame Louisa Aldrich-Blake by Sir William Orpen. Dame Mary Scharlieb presided at the ceremony and called in turn upon those who had been closely associated with Dame Louisa Aldrich-Blake to add their tribute. Sir William Beveridge recalled her as a skilled surgeon and administrator with high academic ideals. Lord Riddell, her biographer, who as President of the Royal Free Hospital was chairman of the Memorial Committee, said the memorial would perpetuate the memory of a great lady who had conferred great benefits on that district. Miss Elizabeth Bolton, chairman of the medical board of the Elizabeth Garrett Anderson Hospital, said that Dame Louisa Aldrich-Blake had served the hospital for 30 years and had done her chosen work with great distinction. Finally Lady Barrett, Dean of the London School of Medicine for Women, paid a tribute to the work of her predecessor as dean of the school. The Benediction was pronounced by the Rev. F. H. Aldrich-Blake. Besides the monument the memorial includes the endowment of a travelling scholarship open to all medical women graduates in the United Kingdom and replicas for the Royal Free and the Elizabeth Garrett Anderson Hospitals of the portrait by Sir William Orpen, which is the property of the London (R.F.H.) School of Medicine for Women.

Notes, Comments, and Abstracts.

THE LONDON HOSPITAL.

DISTRIBUTION OF PRIZES BY LORD EUSTACE PERCY.

THE prize distribution took place in the Library of the Medical College on June 29th, Lieut.-Colonel W. Marlborough Pryor, Chairman of the College Board, presiding.

Dr. W. Wright, the Dean of the Medical College, enumerated some of the distinctions gained by past and present students during the year, recorded changes in the personnel of the honorary staff, and chronicled the death of Dr. Francis Warner, Mr. Warren Tay, and Mr. T. A. M. Ross. He spoke of the benefactions given to the hospital and college by the late Lord Bearsted and by Mr. Bernhard Baron, who had this year presented a further £25,000 towards the endowment of the pathological institute, which would in future be known as the Bernhard Baron Pathological Institute. The new residents' hostel on the north side of the out-patient department was now completed. This hostel was for the accommodation of the junior staff of the hospital, and in no way met, but rather emphasised, the need of an adequate students' hostel.

Lord Eustace Percy, M.P., who distributed the prizes, spoke of his responsibilities in connexion with the large medical staff employed by the Board of Education over which he presided. He was responsible to Parliament, if to nobody else, for the work of some 1100 medical officers, not to mention 1300 specialist officers, and between 4000 and 5000 nurses in the schools. He was the more alarmed for his responsibilities when he considered how rapidly this school medical service was growing in certain directions. In the last two years there had been an increase of nearly 20 per cent. in the school clinics in operation in England and Wales—some 1400 now existed. There had been in the same period an increase of over 20 per cent. in the number of hospitals with whom local authorities had arrangements relating to the treatment and care of school-children. The number of local authorities having schemes of orthopædic ascertainment and treatment in their areas had increased by something like 240 per cent. in a period of two years. He might well feel that he represented one branch of those public activities which would depend mainly, in fact wholly, upon doctors for their support in the future. He thought perhaps that this care of children represented the most important part of our public work, for the years of life between 5 and 14 and sometimes below 5, were perhaps years in which most could be done in the way of preventing disease and disability and of insuring health throughout after-life. This task of improving the general health of children of those ages, remedying curable defects, was perhaps the greatest public medical activity being undertaken at the present moment.

Education and Craftsmanship.

He suggested two reflections, connected with the two capacities in which he appeared before them. One was, on the educational side, the reflection of the privileges which they enjoyed as members of a skilled profession with definite qualifications attested by recognised academic authorities. A comparatively few people enjoyed privileges of that kind. The medical profession was often ignorantly, and even maliciously, publicly referred as a trade-union; he was not sure that it was a title which the medical profession need repudiate. For the skilled professions originated historically in the same way as the industrial crafts. They originated from the same guild system, and, in the Middle Ages at any rate, the medical profession was no less and no more a guild than any industrial craft. But whereas throughout succeeding centuries since then the skilled professions, and above all the medical profession, had coöperated steadily with the universities and schools of this country, and indeed in a measure imposed their requirements for education on the universities and schools of this country, and had thus become an integral part and a controlling factor in our national system of education, the industrial crafts had not exercised the same influence. In the course of all those developments which were customarily lumped together under the name of the industrial revolution the industrial crafts which used to confer upon their members a status no less distinct and no less eminent than that of the skilled professions, had in a way sunk back, so that even the skilled industrial worker with a good secondary school education did not enter his working life with any such definite qualifications behind him as did the member of the skilled professions, and did not feel that he has the same status in the community that the members of the skilled professions held. And perhaps to this might be attributed a very large part of what was known as social and industrial unrest. Now medical men were in some

sort the mediators between the richer and the poorer classes of this country. They had in that respect a great function to perform; the example set by the system of medical education might be of the very greatest service in the future in building up a desire and a demand for more or less similar ideals of education in industry. The medical profession has been able to mould and to a certain extent control university and school education in the past, because it had not fallen into that fatal error of drawing a hard-and-fast line between a liberal and a vocational education.

The present distinction between vocational and general education and technical education would tend to disappear as industries and occupations developed educational requirements for themselves. Lord Eustace Percy suggested for their consideration the standard and type of education required by those who worked in what used to be called crafts and were now called for the most part the industries of the country. In short, he put it to them that those citizens who were discontented were discontended mainly because they felt that they lacked any definite status in the community; they had been prepared by their education with no definite qualification, and their membership of trade and industrial systems depended upon no educational qualifications.

A Discriminating Judgment.

The second reflection he wished to suggest was that professional skill was useless unless it was guided by that incommunicable gift of judgment which could never be taught, but which it was the main aim of education to enable men gradually and insensibly to acquire. He wondered how much of a doctor's actual working time was spent in scientific diagnosis and how much was occupied in mere human advice, not only to his patient, but to half the members of his patient's family. Our medical education, as all types and classes of education in this country, would in the long run be judged perhaps more than anything else by its power to communicate, to encourage, that exercise of human judgment on which we as a nation have prided ourselves in the past more than upon any other quality. As an example from the School Medical Service he took the mental defective problem among school-children in this country. At what point was it desirable to segregate a child who was not mentally up to the mark and was something more than merely a case of backward development? At what point was it desirable to segregate such a child in a special school? To what extent was it desirable to put that child cheek by jowl in that special school with varying types and grades of mental defect? At what age did association with lower grade defectives become harmful to the higher grade defective child? All these problems are problems which required for their solution, indeed a certain amount, a great deal, of high skill and deep scientific knowledge, but which at the same time required more than anything else perhaps the saving gift of common sense and the exercise of a discriminating judgment, and, above all, a sympathetic knowledge of human nature.

Lord Knutsford proposed, and Dr. Robert Hutchison seconded, a vote of thanks to Lord Eustace Percy.

Dr. Hutchison expressed regret that no prizes had been distributed to the teachers. He suggested for future occasions that there might be a prize for the teacher who had given the least boring course of lectures, for the man who had attended his wards with the least degree of unpunctuality, and possibly for the assistant surgeon, who had made fewest bad jokes in the out-patient department. These were all negative virtues, the teacher's positive virtues being beyond any hope of possible reward. If physicians were fortunate enough to win a prize the most appropriate form would be a cheque; for surgeons he thought possibly a book. He concluded a witty speech on a more serious note. There could be no more important work, he said, than to train the rising generation of doctors. The teachers at the London Hospital were vain enough to think that they engage in that work with a considerable degree of success, and that the men turned out—not merely the distinguished students, but the ordinary ones—when they left the College were as fitted for the responsibilities of the profession as the products of any medical school anywhere. They had to face certain difficulties, geographical, financial, and others, which were not felt in the same degree by all other schools, and it was therefore a great encouragement to them to feel that they had the sympathy of the head of the educational department of the country.

NEW CLINICAL THEATRE.

The Bearsted Memorial Clinical Theatre at the London Hospital was opened by Lord Bearsted on June 29th. Lord Knutsford, chairman of the hospital, presided, and recalled the many benefactions given to the hospital by the late Lord Bearsted. To him they owed the whole of the building of the new clinical theatre and a lectureship in connexion with it. Lord Bearsted had only attached one condition to his gift: that it should be open to all classes, all religions, all sects, without distinction. That had always been the tradition of the hospital.

Dr. Robert Hutchison said that the hospital had badly needed a clinical theatre. The one formerly in use was ill-adapted to its purpose, for it was noisy and the teachers had to compete with the noises of the road, often to disadvantage; when that theatre was done away with for a time none at all was available. A modern teaching hospital without a clinical theatre was an anomaly, for clinical teaching was the backbone of all medical instruction. At the London Hospital they had had in the past many distinguished clinical teachers. Men like Jonathan Hutchinson, Hughlings Jackson, Andrew Clark, Frederick Treves, and other great teachers did their work for the most part actually by the bedside, but with the development of modern medicine and teaching it had become a necessity to be able to demonstrate cases, particularly of a rarer type, to a large number of students simultaneously and to illustrate lectures by means of the lantern and epidiascope and other mechanical aids; for this more advanced type of clinical teaching a clinical theatre was a necessity.

Lord Bearsted spoke of his father's desire to show his interest in the hospital in a practical way during his own lifetime. He had felt the cure of disease must depend on knowledge; that the real reason and origin of disease must be found, rather than the palliative or curative effects when the disease has taken hold; and it was for that purpose that this theatre has been erected. In the medical profession there was no such thing as copyright. The medical profession placed its knowledge at the service of all, and that this knowledge should be increased in every way was the desire and the aim of everyone. He hoped that this theatre might prove some small addition to the manifold facilities for gaining knowledge which the hospital afforded.

CHEMISTRY IN THE PROGRESS OF MEDICINE.

IN his presidential address before the Society of Chemical Industry at Edinburgh on July 5th Mr. Francis H. Carr, C.B.E., took as his subject the place of chemistry in the progress of medicine. Pure and applied chemistry are, he said, equally necessary for advancement; progress may best be secured by coöperation in research between academic laboratories, research institutions, and industrial establishments. The chief underlying principle of medical treatment to-day consists in helping the body to produce its own curative agents. Most of the drugs employed in medicine do not cure directly, but by placing the body in a favourable position for exerting fully its own defensive mechanism. On the other hand, a few of the older drugs, such as cinchona and ipecacuanha, do act as direct curative agents. To the mode of action of such natural drugs and the synthetic chemotherapeutic substances which now find a place in medical treatment the lecturer directed particular attention.

Our knowledge of the physiology and biochemistry of living processes is, he said, not yet extensive enough for us to produce a reasoned plan on which to search for chemotherapeutic agents. The chemistry of insulin, of the principles of the pituitary and parathyroid glands, and of the ovarian hormone is still unknown, and although we know the chemical constitution of adrenalin, thyroxine, and histamine and can prepare these compounds synthetically, yet we are not certain as to the methods of their release from the glands which contain them, nor even whether they can exert their action without first being built within the body into more complex molecules. Of the real chemical nature of the bacterial antibodies we know nothing. In many diseases, especially those due to protozoal or amœboid parasites, antibodies do not appear to be formed. Hence chemotherapeutic agents are more than ever necessary, but we can obtain no clue to the type of compound required from our present knowledge of the antibodies and antitoxins.

After referring to the work of Ehrlich, Dale, Voegtlin, Fourneau, Kolle, and others, Mr. Carr concluded: It may not be altogether an accident that more effective therapeutic agencies have been discovered for protozoal diseases than for bacterial; the experimental work has been easier to carry out on animals and less reliance has been placed on purely in vitro experiments. The fact that a suitable animal test may lead to the discovery of a useful therapeutic substance is shown by the recent appearance of plasmochin, a quinoline derivative allied to quinine and most effective in the destruction of the crescent forms of the malarial parasite. The test animal used in this particular instance is the canary, infected with the parasite of avian malaria.

Future advance in chemotherapy lies in the direction of biochemistry and more effective contact between workers in chemistry, bacteriology, physiology, and clinical medicine. Less reliance must be placed on purely in vitro experiments and much more on adequate animal tests followed by extensive clinical trials.

MOTOR ACCIDENTS AND HOSPITALS.

IT is not surprising that the attention of the members of the British Hospitals Association, who met in conference recently at Norwich, should have been engaged the whole of the first afternoon in discussing the present unsatisfactory position of the voluntary hospital with regard to services rendered to the victims of motor accidents. The matter as regarded actuarily was ably and at times humorously dealt with by one of the vice-presidents of the Council of the Insurance Institute of London. He accounted for the vast number of accidents, which occur daily on the roads and streets, by the growth of motor traffic which has been so rapid that pedestrians have not accustomed themselves to the changed method of transport. The National Safety First Association is doing much to educate the public, and Mr. Jenkins pointed out that the very fact of the Association undertaking such work was a proof that it was recognised the motorist was not alone to blame for the many lamentable disasters which occur. Sir Arthur Stanley, at the dinner given in the evening to the delegates, asserted, as a good sportsman, that "if you have to be run over at all it is more pleasant to be run over by a motor-car than by an old four-wheeler, because in such a matter it is all to the motorist's credit that he can do the thing quickly!" Be this as it may—and after all it is a matter of opinion—in most hospitals, situated in or near a busy thoroughfare or an arterial road, 75 per cent. of the beds in the accident or surgical wards are frequently occupied by the victims of a motor smash. This state of affairs reacts badly on the voluntary hospitals in two directions; the waiting-lists of the institution, already in many cases terribly lengthy, are increased, and the hospital exchequer is ruthlessly depleted. As matters stand at present there is nothing but a feeling of gratitude or moral rectitude to ensure that a man or woman even attempts to pay for his keep and treatment in hospital, not to mention the skill of surgeons and nurses. From reports received these qualities seem often strangely deficient in the motorist and his victims, and no legal claim can be made by a voluntary hospital. The insurance expert is of opinion that a right given to a hospital to attach any portion of the insurance money would result in enhanced hospital charges as well as increased insurance premiums. The remedies at present put forward appear to be four. First, to quicken the moral sense of the casualty patient, so that he may pay more willingly—surely rather a forlorn hope. Secondly, that a special 10*s.* should be added to the motorist's insurance premium to enable him to settle the hospital claim. Thirdly, to enable the patient to pay off his indebtedness after recovery by a system of instalment contributions till the whole is discharged. (As it has been pointed out the motorist frequently buys his car on the instalment system, why not pay for his injuries in the same way?) Lastly, a suggestion was made in the *Times* by Dr. Henry J. Wells, in the issue of June 22nd, to the effect that motorists should subscribe to a fund designed to meet the heavy expenses to which hospitals are put by motoring accidents, and that the trustees of King Edward's Hospital Fund (or some such body) should agree to allocate, on a basis of the number of motoring accidents attended to, the sum placed at their disposal. We understand that the hon. secretaries of the Fund are considering this suggestion.

MUSTINESS IN EGGS.

THE "musty" egg has long figured as one of the minor trials of domestic life. In the past it has been regarded as falling in the same category as wet weather, thunderbolts, cats in the garden and other acts of God, and of the King's enemies as something inevitable, uncontrolled and fore-ordained. The light of science has now, however, been turned upon the musty egg and the cause of its fall from grace is apparent. Mr. A. W. Turner,[1] working in the Veterinary Research Institute of the University of Melbourne, has shown that the peculiarities of the musty egg are due to the working of a small Gram-negative bacillus which he aptly and with a fine ear for *le mot juste* proposes to call the *Achromobacter perolens*. This bacillus grows better at room than at body temperature, from which Mr. Turner deduces that musty eggs are not born in sin but acquire mustiness as a result of contact with the world. Experiments in which cultures of the *Achromobacter perolens* were rubbed upon eggs which had been thoroughly scrubbed and those which had received no such treatment demonstrated quite clearly that although the organism was able to pass through the shells of both, it did so with much greater ease in the case of the scrubbed eggs. From this Mr. Turner deduces a protective power imminent in the "bloom" or natural waxy coating of the egg-shell. This is a piece of research which should be of interest to those housewives who religiously scrub all eggs before placing them in water-glass.

[1] Achromobacter Perolens, the Cause of "Mustiness" in Eggs, by A. W. Turner, Australian Jour. of Experim. Biology and Medical Science, vol. iv., Part 1, 1927.

VACCINE TREATMENT OF ACUTE RHEUMATISM.

SOME experiences in the treatment of acute joint rheumatism in children with gonococcus vaccine have recently been described by E. Faerber and R. Kaplan.[1] The method of treatment followed was that of Brunthaler, who was the first to introduce treatment with vaccines of this organism, on the ground of its possible relation to the "rheumatic diplococcus." The vaccine employed (arthigon) contained 100,000,000 organisms per c.cm. in 40 per cent. urotropin solution. It was given intramuscularly at intervals of 2 to 3 days, the dose being 0·5 c.cm., increasing to 2·5 c.cm., and 5, 10, or 15 injections being given in all. Febrile reactions were slight and irregular and could not be relied on to indicate the length of treatment required. The result of treatment of 12 cases is reported, all the patients having suffered from rheumatism of joints at the time of admission. The series is short as articular rheumatism is not common and other cases were excluded as being insufficiently controlled. The observations covered periods of six months to four years. None of the cases had been treated with salicylates. Seven cases are reported to have remained free from valvular disease. Of five cases reported to have lesions on admission three have apparently recovered. Whilst claiming no certainty in the results Faerber and Kaplan strongly recommend further trial.

A SUPPLEMENT TO THE SANITARY TOWEL.

To the Editor of THE LANCET.

SIR,—An appliance has recently been brought to my notice which, I am convinced, fulfils a long-felt want. I have asked several of my patients to try it, and they all speak of it in terms of the highest praise. Briefly, it affords a complete protection for the inner aspect of a woman's thighs when wearing a vulval pad. It consists of two thin pieces of celluloid which fasten snugly round each thigh by means of an adjustable elastic garter, the adjustment ensuring an instant fit for either a stout or thin patient. A second elastic strap running up the outer side of the leg at right angles to the former is secured to the corset, keeping the whole thing securely in place. On either side of the celluloid is a soft, thin, absorbent gauze pad, the outer one to prevent the celluloid from touching the skin of the thigh, the inner, being in contact with the pad or towel, absorbs any blood or discharge. Each of these gauze pads can be detached instantly and thrown away when soiled, its place being taken by a new "refill." The celluloid can, if necessary, be cleaned with soap and water. Their combined weight, with straps and all, is under 3 ounces, and owing to their flexibility they conform to any movement, and when in position, I am assured, their presence cannot be felt. The chafing and irritation caused to many women by the prolonged use of a sanitary towel is very great, but this appliance not only prevents any discharge from reaching the skin but also prevents the towel itself from coming in contact with the skin. I believe a number of the large chemists are now stocking this article, but it can readily be obtained from the firm who is introducing it: the Queenett Co., 134, Cheapside, E.C.

I am, Sir, yours faithfully,

Harley-street, W. G. MURRAY HEIRON.

*** The appliance to which Dr. Heiron refers was submitted to us for inspection. It appears to fulfil the claim made for it by the manufacturers, and may well prove useful to women who suffer from profuse menstrual or other vaginal discharge.—ED. L.

CURRENT OFFICIAL STATISTICS.

WE have received from H.M. Stationery Office Vol. I of the Guide to Current Official Statistics, covering the year 1926 and part of 1927 in certain selected publications. The object of the guide is to direct the inquirer to all current official publications that contain statistics bearing on the subject in which he is interested, and more especially to inform him of the nature of the statistics he will find in the volumes to which he is referred. We have already commented on this useful book for anyone who desires, for instance, to look up such subjects as hospitals, infantile mortality, midwifery, nursing, or vaccination, in so far as they come under the purview of the various Government departments. The last part of the index is occupied with a list of the titles and cost of the publications issued by the departments including the Ministry of Health and the Medical Research Council. The Guide grows in value from year to year and has already become an indispensable companion to the reference library. The price is 1*s.* net, or 1*s.* 4*d.* post free.

[1] Jahrbuch für Kinderheilkunde, May, 1927.

ALEXANDRA DAY COLLECTION.—The Lord Mayor of London has announced that the London collections on Alexandra Day amounted approximately to £50,000.

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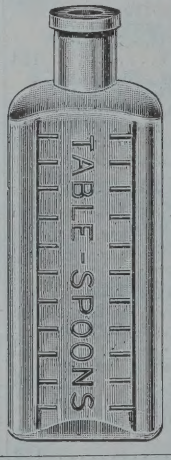

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P.P.7

MacAlister Lecture

ON

DIET AND DIETISTS.

Delivered before the London Clinical Society on July 7th

BY SIR THOMAS HORDER, BART., K.C.V.O., M.D., F.R.C.P. LOND.,

PHYSICIAN-IN-ORDINARY TO THE PRINCE OF WALES; PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

THIS is the first MacAlister lecture of the London Clinical Society, and I wish someone more worthy than myself stood here to deliver what is intended to honour the memory of him who left us so recently. Amongst those glowing tributes which were collected into a little book last year for the comfort of his family and his friends occurs the phrase: "Something should be done to perpetuate so fine and beautiful a character." He who said this, one of his most constant associates, doubtless had in mind a larger and more worthy monument than the foundation of this lectureship. Yet I feel that, had he known that the London Clinical Society proposed to show him this special token of esteem and respect, it would have brought him a quiet sense of satisfaction. As to the larger and more worthy monument, that we have already—a monument erected in his lifetime, and very largely as the result of his own patient and indefatigable efforts. I refer, of course, to the Royal Society of Medicine. Of this lectureship, as of the glowing tributes to which I have referred, he knew nothing. But he must have looked again and again at the fine building which houses the Society, must have pondered its meaning, and all it stands for in medicine, and must have rejoiced that the fruit of his labours ripened and was gathered in his lifetime. It is given to very few to see their work crowned in so magnificent a manner, and it must greatly comfort those whom he left behind to realise that he saw with his own eyes the superstructure, as well as the stone which was so well and truly laid long years before.

That great physician, Osler, said of Sir John MacAlister that he had done more for medicine than any medical man had ever done. No tribute could better express what we all feel to-day, and what all who care to read the history of medicine in this country, even in generations to come, will feel concerning him whom we are met here this evening to honour. It may perhaps be allowed to one who follows Osler a long way off to refer to a long and always happy association with MacAlister, and to add one more personal testimony to his unfailing helpfulness and to his constant loyalty. So urbane and so patient was he that he never let even the most junior of the Fellows of his Society realise how trivial were some of the matters taken into his room. The applicant for advice or for assistance always left his presence with self-respect unimpaired; and many times, *too* many times—the vanity of youth considered—with an added sense of importance of the matter discussed. His encouragement was one of the most stimulating things in my life, and will never be forgotten. How many hundreds there are who would say the same, were they standing here to-night and enjoying this great privilege that has been given to me.

THE IMPORTANCE OF DIET.

I have chosen a very commonplace subject for my lecture to-day. It is perhaps well sometimes to speak of commonplace things in medicine and, after all, it is the commonplace things that are the most important. It is a little significant that so long as a man is well he does not regard diet as being an important factor in health, whereas once he is ill, and whatever be the nature of his illness, he immediately considers it the most important factor of all. As is usually the case, both attitudes exaggerate the real facts: diet *is* important as a means of keeping healthy, and it is not nearly so important a therapeutic measure in disease as the lay mind imagines. The old adage, ascribed to Swift, which states that the three best doctors are "Dr. Diet, Dr. Quiet, and Dr. Merry Man," might refer quite as truthfully to the preservation of health as to the cure of disease.

It is always a difficult problem for the doctor who inculcates principles of hygiene to steer between the rocks of too much indifference on the one hand, and too much meddlesomeness on the other. We frequently see wreckages as the result of ignorance or of prejudice taking the helm during this voyage. If I say little or nothing this evening that is novel, it is because of my desire to avoid another wreck. The barque in a precious one, and I would much rather proceed a very little distance, and leave the ship in mid-stream, than boldly forge ahead when not quite certain of the course. There is even another contingency to remember: the sea may be so turbulent, and exact knowledge of the situation of the rocks so uncertain, that there may be no little virtue in keeping the vessel very much where the pilot found it, especially if the bearings are taken, and are made available for the next man who holds the helm. I say this to anticipate disappointment. I am not sure that I am going to do anything more this evening than to take soundings and hope to keep the ship in the fairway.

MODERATION.

As I have said, we are rarely consulted by healthy folk concerning their diet. Even if we were, I am not sure we could tell them very much that they do not already know. I am not speaking of the feeding of babies, which is, of course (or was, until recent years), a matter of special ignorance. Given that the quality of food is good—that it is free from adulteration—and that it is properly prepared for eating, whether by cooking or otherwise, the major part of our advice to the healthy person would probably turn upon quantity. And though we did not use the words, temperance or moderation would really be the key to what we said. And here, perhaps it is well to reiterate a truism—that temperance is not abstinence, and not even parsimony. Milton, in Comus, speaks of all the world feeding on pulse "in a pet of temperance," and it must be confessed that many so-called temperance advocates are a little inclined to be "hot" about their exhortations. But to quote Milton again:—

> "If thou well observe
> The rule of 'not too much,' by temperance taught
> In what thou eat'st and drink'st, seeking from thence
> Due nourishment, not gluttonous delight,
> Till many years over thy head return;
> So mayst thou live, till, like ripe fruit, thou drop
> Into thy mother's lap, or be with ease
> Gather'd, not harshly plucked, in death mature.
> Temperate in every place—abroad, at home,
> Thence will applause, and hence will profit come;
> And health from either he in time prepares
> For sickness, age, and their attendant cares."

That most people eat too much will scarcely be gainsaid. Judged by the known number of calories that the engine requires for efficient work, this is certainly the case. And yet there is no general consensus of opinion as to what this requirement in calories actually is. We have been through a period, enforced by war, when parsimony in this respect gave us an object-lesson which nothing else could well do. There are many fallacies in the conclusions to be drawn, but on the whole there seems agreement that health all round was not much, if at all, prejudiced by the reduction in food calories. Such disabilities as did occur were probably attributable to qualitative rather than quantitative causes. It is taught that there are many conditions that should influence diet, especially in regard to this question of quantity. The nature of a man's work is generally said to be one of the most important of these. It is said that the brain worker requires less food than the manual worker, and that this fact has been established experimentally. I have read the experiments and I am not impressed by them. I do not think it is possible to get satisfactory conditions for such

experiments. Brain work is such an individual thing. One man sits quietly, with very little muscular movement, working out a mathematical problem by the hour. These, by the way, are the conditions generally chosen for such experimental observations as I have spoken of. Another man, active by nature, is alert, talks and moves about, yet, like the other, is doing brain work. It is quite likely that the food calories required by the latter example of brain worker will approximate nearer to the labourer than will those required by the former. If appetite be a guide to food requirement, and it certainly is in health, then it is a fact that many brain workers require quite as much food as many manual workers. That the brain worker does better work with small meals than with large ones is a trite statement; but this refers only to the period of his actual work. That he benefits by a larger meal when his work is done, always provided he be not overtired, many will agree from their own experience. But I think this applies to the manual worker also. A prudent man will adapt his meals to his work rather than his work to his meals, though it probably tends to the greatest efficiency to do both of these things. Thus, some men who take care to economise in regard to these matters choose relatively slight tasks to follow the midday meal—assuming there be a choice, as there often is. This is but a corollary to the ancient boast attributed to Socrates, who said, "Other men live to eat, but I eat to live."

FASTING.

There has of late been quite a little boom in the direction of fasting, and this may perhaps be considered in relation to the quantity of food, since to eat nothing at all is, strictly speaking, a quantitative business. I am prepared to admit the value of fasting for short periods in certain diseases, but in the absence of disease I have never seen any good results from it which may not be obtained by less drastic means. I think there is value in the occasional missing of a meal, or in the substitution for a meal—most conveniently and helpfully the midday meal—of a few biscuits and a piece of chocolate. But the more elaborate and prolonged process of actual fasting which is sometimes advocated, and which requires, for its proper carrying out, a complete or a partial cessation from active work, has never seemed to me to promise any real benefits. The necessary inactivity is clearly uneconomical, and the method is therefore only practicable for the non-workers (with whose diet we need not seriously concern ourselves), or for the worker during vacation times. I do not believe that fasting is of value to the healthy person in the long run. As I have said elsewhere, I fear the pride which follows the pursuit of any such dramatic measure, to say nothing of the risk that so great an exercise of restraint might lead a man to think that subsequent indulgence is safe; for human nature is very frail. Surely it is better to adopt a régime to which one submits not uncomfortably, than to endeavour to enforce one which appeals as a series of unnatural denials. As I have already said, even a three days' fast, however thrilling an experience this may prove for the leisured man, is fraught with much inconvenience, and not a little sacrifice of efficiency, to the occupied one.

In some diseases, as I have hinted, a short fast, the patient remaining in bed the while, and undergoing a preliminary purgation, is often beneficial. Of general diseases arterio-sclerosis and hyperpiesis are examples. The periodic fast-day in the treatment of diabetes, euphemistically termed by some a day of "alimentary rest," has more than justified itself in certain cases. The French method of treating acute appendicitis and some other inflammations connected with the alimentary tract by several days' fasting, allowing only water to drink, is well known.

MEALS AND FATIGUE.

In regard to the times of eating, custom dictates three meals a day, and this fits clearly with known facts regarding the physiology of the stomach. It also splits the working day into convenient and economic periods, allowing the meal times to synchronise with rest-times from work. The injunctions not infrequently heard, to make a habit of going without breakfast, or without lunch, and the declarations of unusual fitness to be derived therefrom are, doubtless, in the main, experiments in individual psychology, with the attendant benefits about to be referred to in connexion with such experiments. I doubt very much if, in the long run, the two-meals-a-day man scores anything in efficiency or in health over his more ordinary brother. I am speaking now of routine, not of the occasional missing of a meal, of the benefits of which I have already spoken.

Fatigue of an unusual kind makes the consumption of a full meal very inadvisable. This is common knowledge, yet one frequently sees the crime committed, with due penalty imposed by nature. Fatigue, exposure to cold, and a heavy meal—these three things coinciding, form quite a common piece of history in the evolution of a number of acute diseases. I need not enter into the explanation. The method of feeding appropriate to excessive fatigue is that which is applicable to a return from fasting—small, warm, and easily digested feeds. The busy doctor, home late from his day's work, "thoroughly done," has had his dinner "kept hot" for him. A solicitous wife has heaped the plate all too generously—for to "feed the brute" is still regarded as a mark of affection—the oven has been rather too hot, or not quite hot enough (either defect contributes its corresponding element of indigestibility to the pile of meat, vegetables, sauce, and gravy), and the weary man "lets himself go" upon the mass. Result, a period of gastric stasis, a restless night, and perhaps all manner of subsequent disabilities. How much better to have given the official dinner a "pass" and substituted a small basin of bread and milk.

There is an affinity between sleep and eating, in the sense that, for efficiency, one is vicarious in respect of the other. The less sleep, the more is food necessary; the more sleep available, the less food needed. The doctor who sits up all night with his patient and then has the good fortune to get a long night's rest next day knows the truth of this statement.

AGE AND SEX.

There seems little doubt that age should affect our views upon diet, and especially in regard to the quantity of food. We should "play for safety" in children, and in all persons at a period of growth, allowing a liberal measure. I remember reading the lengthy report of a pathologist, who obviously had marked views on the subject, in which he attributed some visceral troubles in a man of 40 years to the fact that his mother "fed him up" at the age of 14 when he was convalescing from an attack of measles. I was not at all convinced. At the other end of life however, there is no doubt that both the amount of food, and the frequency of taking it, can ofttimes be reduced with advantage. There is an old proverb which reads: "Who steals an old man's supper does him no harm," and the sense of the saw fits well with experience. The well-known injunction of Bacon is often quoted in this connexion: "Discerne of the coming of the years, and think not to do the same things still, for age will not be defied!" Dr. Robert Hutchison reminds us that whereas leanness and longevity go together, "a man will only roll all the faster down the hill of life if his figure be rotund." It is necessary to beware, however, the tendency of old people to dictate to those who are younger, and to preach a regimen for them that they find by experience well suited to themselves.

As regards sex there is not much to say. There is general agreement that, other things being equal, the female needs less calories than the male. But this consideration probably does not apply to the period of growth. If so, the individu-

requirement may be the opposite of the general rule, and I think this is true. As to frequency, experience suggests that women need feeding at shorter intervals than men; but here, as so often, there are great individual differences seen. There appears to be a definite physiological necessity involved in the early afternoon tea which most women require for the efficient working of at least the nervous part of their economy. No man who loves peace in his home will make it difficult for this meal to be punctual, whether he shares it or not.

Individual Needs and the Evangelical Dietist.

The individual factor in dietetic requirements is a very large one, and there are many fallacies entering into the argument of personal experience as a guide to diets for all and sundry. So often we hear a patient say that he pursued a certain line of diet on the advice of a friend, but that it did not suit him; or we are asked if such and such a line of diet is likely to prove beneficial. It is a futile business from the first. The patient is perhaps a brain worker with a large output of highly responsible and technical work; his friend is a dilettante with a small output which involves no issues to speak of and is devoid of meaning. The patient is tall and lean and suffers from neurasthenia; the friend is short and stout and has a high blood pressure. These are but a few of the possible fallacies. There are many others. There are fallacies of race, of climate, of occupation, of habit. What boots it to the citizen of twentieth-century London that the Eskimo lives on a pound or two of blubber daily, that the Hindoo exists on rice, or even that the Scottish crofter manages to live and work on oatmeal? (As a matter of fact he does not live on oatmeal; he lives on oatmeal and milk, but the milk is conveniently —I must not say unscrupulously—omitted to serve a favourite thesis.) We ought to distrust all these stupid so-called arguments.

There is the constitutional fallacy, too. "Look at me," says the advocate of some dietetic fad, "see how fit I am." Very often he is fit in spite, and not because of, his cranky diet. He was *made* fit, and nature's almost infinite capacity for adaptability enables him still to remain fit, his odd dietetic rules notwithstanding. There are some folk who are so fit by nature that good health almost hurts them; it is a positive danger. There are others who only attain, and keep, fitness by a constant struggle. "Do you not think, doctor," said a woman, the very sight of whose robustness made it evident that she belonged to the former class, "that it would help my husband if he were a vegetarian, as I am?" The husband was small, weakly, and full of minor disabilities of a nutritional kind. "Madam," I said, risking a mortal offence, "I perceive that you can afford to be a vegetarian." It is as old as Lucretius, probably older still, that "one man's meat is another man's poison" —*rank* poison, Lucretius is reputed to have said. The dictum has been restated by many wise men down the ages.

Then there is the psychological fallacy, at which I have already hinted; it is a very large and very common one. The man with a theory—if odd notions about diet may be distinguished by so scientific a term—is already half way towards a successful experience. He attributes to his practice what is really due to his enthusiasm. He has the endurance of the martyr and he burgeons upon his idea rather than upon his regimen. The fakir fasts for weeks, and appears to thrive; he is filled by a fervid afflatus which gives him unnatural strength. But the plague seizes him and he falls a ready victim. True, he succeeds, because he enters his paradise a conqueror of the flesh. But this is neither medicine nor science. It has been my experience to meet several strange advocates of great parsimony in diet. One was a writer of some distinction; I can see him now, pacing up and down my consulting-room, waxing eloquent ment the clear vision and the spirituality of thought which he secured as the result of semi-starvation. I was able to recognise in his eye and manner an ecstasy which, I have little doubt, was not unrelated to his felo-de-se, which I saw recorded years afterwards in the papers as having taken place in America. I have helped to resuscitate from states of inanition two of our own profession, loud and influential exponents of diets in which the *maigre* element was paramount. One of them was fed every two hours on beef-tea, fortified by raw meat-juice, until the thermometer registered something that really showed him to be a warm-blooded animal, his pulse reached the "50's" and he ceased to babble o' green fields. It fills me with despair to know that he is once more teaching that meat is a poison, that milk is little better, and that the proper diet wherewith to combat all the ills that flesh is heir to is raw fruit and raw vegetables.

Speaking of fruit reminds me to say that there appear to be two values in this as an article of diet. In the first place, consisting as it does, in most instances, almost entirely of water, its consumption provides for more water in the diet—an almost universal benefit. In the second place, people believe it to be a food, and therefore in eating it they unwittingly reduce the total bulk of their diet; another manifest advantage in many cases.

Ill-Effects attributed to Diet.

I now turn to the consideration of a very important question—that of diet as a factor in the production of disease. There are few established facts in this connexion, and there are many rather wild statements which are based neither upon experiment nor upon experience. Let me confine myself at first to the possible ill-effects of ordinary wholesome and mixed dietaries. We know that a "luxus consumption" tends, in certain individuals, but by no means in all, to gout and obesity. We also know that the repeated mechanical distension of the stomach by a large bulk of food may lead to its dilatation, perhaps permanently. A surplus of sugary and of starchy foods sometimes produces diabetes in predisposed persons. Perhaps—but only perhaps—excess of protein food may tend to kidney disease. But here our knowledge, or our half-knowledge, ceases. And it will be seen that the evils are due to excess in the total amount of food, or excess of some particular type of food: the error is a quantitative one. If now we pass to consider diets which are restricted in some of their principles, or which are changed in certain essential particulars by the action of heat and certain chemical agents, we find that a group of so-called deficiency diseases may result from the deprivation of vital substances termed vitamins or accessory food factors. We are not yet certain how many morbid conditions are included in the deficiency diseases, but so far as research has gone, it is probable that the list at least includes beri-beri, scurvy, rickets, and keratomalacia. Normal growth, too, seems to depend to a considerable extent upon these or similar substances being present in food. It is established that very little of these substances is really necessary to prevent these diseases: the bodies concerned appear to be of the nature of ferments, or (better) activators of assimilation and perhaps of metabolism. The notion that has been promulgated of late, therefore, that great care must be taken in order to ensure a sufficient supply of vitamins in the diet of the vast majority of people in this country is absurd. Very little suffices for the purpose, and it is certain that the common mixed diet of most households contains sufficient and to spare of all the vitamins without special precautions being exercised in this direction. Plagiarising Prof. W. M. Bayliss, I might say, "Take care of the mixed diet and the vitamins will take care of themselves." This is the science of the position as far as we know it. And yet I read some advice the other day in which the doctor exhorted the patient to "fill himself up with vitamins," as though they were like the beer of the familiar drinking song!

WHOLEMEAL BREAD.

Much of the advocacy of wholemeal bread turns upon the fact, an undoubted one, that, bulk for bulk, it contains more vitamin B than does white bread. This fact becomes of very minor importance, however, when we remember that other common foods are very rich in this same vitamin—namely, eggs, peas, beans, lentils, and nuts. The most serious error introduced into this same advocacy of wholemeal bread is the impression given that white bread contains none of this vitamin at all. The truth is that, although white *flour* is practically free from vitamin B, yet, since yeast is extremely rich in this vitamin, white *bread* contains it. Both forms of bread having been subjected to the same degree of heat, neither has an advantage over the other in regard to the partial loss of vitamin on this account.

How comes this fallacy about? I can only suggest that there has been an absence of clear thinking on the part of those who have taken up this campaign in favour of wholemeal bread.

I suspect that the advocacy of this bread was begun on the ground that the extra cellulose which it contains, forming what has been termed "roughage," is of advantage as a mechanical irritant to the mucous membrane of the colon, and scours the intestine by bulking up the stool. Enthusiasm would appear, then, to have seized upon the fact that white flour is free from vitamin B, and to have loosely converted this into the statement that white bread is also free from vitamin B, thus adding—but quite erroneously—another supposed benefit to wholemeal bread.

In short, the undoubted benefits to be derived by some people from wholemeal bread as a means of avoiding colonic stasis have become confused with the question of the nutritive value of this article of diet. Even if it were true that the chemical composition of wholemeal bread proved that it had a higher nutritive value than white bread, which, as a matter of fact, it does not, this would give no guarantee that the person who eats it secures this additional possible nourishment. Because the net effective nourishment obtained from any article of food depends quite as much upon the form of its presentation to the digestive organs as to its ultimate chemical composition. More than a certain amount of cellulose is actually deterrent, both to the process of digestion, and to that equally important function, assimilation. In the first place, this cellulose prevents the free access of the digestive juices to the nutrient principles of the food. In the second place, the mechanical irritation of cellulose which is at all hard, and in the state of "roughage," causes a reaction on the part of the mucous membrane of the bowel, whereby there is a flow of fluid of a valuable kind into the lumen of the gut, so that much of the nutrient material is carried away in the fæces. Not only must we consider the mode of presentation of a food to the digestive organs themselves, but we must also consider the mode of its presentation to the eye, the nose, and to the palate. The psychological element in food values has been known, both physiologically and gastronomically, for a long time, but it has been largely omitted from the teaching of some recent writers. This is an important consideration in the question of the relative values of wholemeal and of white bread, to say nothing of its bearing upon the asbestos-resembling material which has been much vaunted of late. It is clear, therefore, that the whole question of the relative values of white and of wholemeal bread is much more complicated than the public is led to suppose by reading recent propaganda, much of which, I feel impelled to say, is the outcome of an ill-informed enthusiasm, rather than of considered judgment after a proper survey of all the facts.

Even so the matter does not end here. If we turn for a moment to economic considerations we find that, bulk for bulk, white bread possesses more actual calories available for nutrition than wholemeal bread, so that, even if the two articles were obtainable at the same price, which at present they are not, the average citizen may stand to lose more than he gains by the substitution of the latter for the former. Seeing that, as already stated, his vitamin B is amply assured in other directions, there only remains the dubious advantage of the scouring effect of the wholemeal bread to which I have referred. The question remains, does the average man require this "roughage," and, if he does, is it a good thing in the long run that this roughage should be introduced in the form of what, after all, is his principal article of food rather than in some far more subsidiary article? This last consideration is quite possibly the crucial one in the whole matter I am now discussing.

COLONIC STASIS AND ITS RESULTS.

The question cannot be taken further without touching upon the subject of the transit of food through the alimentary tract and the associated subjects of the frequency and the consistency of the stools. Clearly, nutrition is not a matter of how much food-value is put into the mouth, but of how much of this food-value is made use of in the body. If a large part of it leaves the body in the fæces, then apart from the possible psychic benefit to the person derived from the knowledge that he is having so many actions of the bowels per diem—and this psychic benefit will depend upon what he is taught as to the criterion of health in this respect—he is actually the loser, and not the gainer, by the particular choice of food which leads to this result. Certain recent teaching on these matters has influenced the public in such a way that even the regular passage of a formed action once a day leaves many of them in a state of apprehension lest some evil befall them. Personally my own observations lead me strongly to the opinion that the consistency of the stool is of greater importance than its frequency. There are, we know, some individuals who never pass formed stools, and this independently of diet and medicines. But the average healthy man does pass formed stools; this can scarcely be gainsaid. I find it very difficult to believe that to convert this normal type of stool into one of more fluid consistency—whether by choice of food or by medicaments, call them aperients or lubricants, or what we will—is to confer any known benefit upon healthy persons. What is the nature of the benefit which such a change is supposed to confer? We are told that this change prevents colonic stasis and that colonic stasis is a precursor of a whole series of diseases, including cancer. I propose to deal with these claims in the light of such knowledge as we have on the subject.

In the first place, I would remind you that some degree of colonic stasis is physiological; to take steps to avoid it entirely is, therefore, unreasonable. The slowing down of the passage of the intestinal contents through the colon allows of the absorption of water, perhaps also of nutriment, and secures the moulding of the mass so as to form a stool which can be easily dealt with by the musculature of the pelvic colon and of the rectum in the act of defæcation. Colonic stasis, then, is not pathological unless it becomes so marked as to leave a residue in the cæcum and in the ascending and transverse colon, in such a way that efficient and regular drainage of these parts does not take place. Clinical observation, aided largely by radiographic investigations, shows that in many patients coming to us for treatment such pathological stasis does occur. But in other patients, in whom similar observations and investigations prove that there is habitually an unduly hurried clearance of the colon by rapid transit of the intestinal contents, we do not see any corresponding benefit accruing. On the contrary, such patients are liable to ills of their own, not less in degree or in significance than in the case of their more sluggish fellows. It is a fallacy, therefore, to teach that good health is in all persons proportionate in any sense to the rapidity of transit of the intestinal contents through the colon.

When we come to the second part of this teaching we have to record that there are no established facts at all which justify the notion—I will not distinguish it by the term hypothesis—that such

liseases as peptic ulcer, appendicitis, and cancer result rom, or even tend to result from, a slow passage of he intestinal contents through the colon, still less rom what may be regarded as the known physiological ate of this passage. That this is true is of the utmost mportance in view of the public apprehension in egard to cancer especially. This apprehension has ecome seriously increased as the result of propaganda elating to "intestinal intoxication" and its supposed aleful effects.

In this connexion I have more than once pointed ut that, far from colonic stasis and constipation eing known precursors of cancer, the evidence points lefinitely in the other direction. The type-case of ancer of the colon is *not* the case of a chronic colonic lyspeptic, but of a patient whose intestinal functions ave been quite good up till the time when it may be resumed from our knowledge of the growth of arcinoma in this situation that the neoplasm began. gain and again are we told by patients that until bout this point in the history of the case, the bowels cted regularly and well, and without the use of perients. Cancer of the colon is more frequent in nen than in women, whereas colonic stasis is much nore prevalent in women than in men. Again, the ubject of chronic intestinal dyspepsia seems to levelop cancer quite infrequently. On the evidence efore us, therefore, it would be just as logical to reach a slowing-down of the intestinal contents as a rophylactic measure against cancer as to inculcate he doctrine which I am now criticising. The same rror has crept into considerations of the pathology of astric cancer. We are told that gastric ulcer and hronic diseases of the stomach tend to cancer of this rgan. The evidence points entirely the other way. he chronic gastric dyspeptic, whether his or her rouble be peptic ulcer, or dilatation, or gastritis, only evelops cancer in relatively few instances; whereas ancer of the stomach, arising without any history of revious dyspepsia, is a very common disease.

It is quite seriously alleged that there is radiographical evidence in support of the teaching that ancer is an end-result of colonic stasis. I have never een able to ascertain what this evidence is, and I egard the allegation as being entirely without foundation.

PERPLEXITY OF THE PUBLIC.

The public has been put in a dilemma, and by the ame school of doctrinaires. On the one hand it is arned against even the mildest aperients, and is told hat to use these involves a danger of cancer; so hat I now get letters from patients asking me if they hould, on this account, give up the taking of (say) he pinch of Epsom salts every morning which seems o have helped to keep them in health for many years. n the other hand, the public is warned with equal eriousness that if it does not secure three or four ctions of the bowels a day the danger of cancer is ven greater! So that some patients, again, with this read in their minds, are certainly living on the edge malnutrition. Surely it is time a health society ose which spread a less confusing and a more omforting gospel; it might be called the Society of ommon Sense. To begin with its main thesis might e to leave well alone. Later it might embark upon me simple but well-established principles of hygiene, aving alone all personal and highly debatable ideas. ccording to the teaching which I am now combating e whole duty of man in respect of his diet would em to be summed up in this dictum: Put very tle into your stomach and take care to get it out ain as quickly as possible.

It is surely a grave responsibility to attempt to oselytise in the name of science, instead of making clear that what is advocated with such fervour is ly a form of personal belief? Laymen have been ld that upon the selection of their food turns, in a ge measure, their chance of developing cancer; t we know no single fact whatsoever concerning the usal association of diet with cancer. True, the idea iginated largely in the mind of a layman. But fortunately laymen have been encouraged to write popular books and articles on this subject under the ægis of medical men—a glaring instance, as I have already pointed out, of qualified practitioners giving "cover" to unqualified men.

DIET IN DISEASE.

I have not time to-day to deal with diets as applied to actual diseases. There are, as we all know from personal experience, many "cures" vaunted as infallible remedies for nearly every disease. I have already referred to the fact that it is a common belief that there *should* be a special diet for all ills. No question is asked more often in our consulting-rooms than "What may I eat, doctor?" It not infrequently happens that a patient, suffering from a malady of many years' duration, insists upon hearing before he departs what he may have for his lunch that day. And it is pathetic to watch his face light up as we detail some very safe and easily digested dish. These people are an easy prey to the diet-monger who claims a panacea for every malady. With one such enthusiast it is the Salisbury diet, with another fruit, with another raw vegetables. And all patients get the same diet from the same source. The tall, gaunt, woman, with enteroptosis and neurasthenia, gets the raw turnips and carrots together with the plethoric city magnate. The badly-nourished patient with rheumatoid arthritis gets the same instructions as the arteriosclerotic with hypertension.

I am moved, when I come across this kind of thing, to a spirit of thankfulness that the classical text-book dealing with the subject of food in this country comes from the pen of a man possessed of the inestimable gifts of common sense and judgment. Dr. Hutchison says it must not "be supposed, as the laity are apparently tempted to do, that diet is a universal panacea which can be counted upon to prevent or to cure all diseases. On the contrary, it has, like other remedial agents, only a limited place in therapeutics." If such forbearance in thought and in expression were a more common attribute in some of those who undertake the serious and responsible task of instructing the public in hygiene, though they may not say so much, their influence would be exercised to much better purpose, and redound more to the credit of medicine.

An Address
ON
THE POOR-LAW HOSPITAL AND ITS RELATION TO GENERAL PRACTICE.

Being the Presidential Address delivered to the West Kent Medico-Chirurgical Society on May 13th, 1927,

BY HUMPHREY NOCKOLDS, D.S.O., M.B., B.S. LOND.,
MEDICAL SUPERINTENDENT, LEWISHAM HOSPITAL.

IN 1867 the Metropolitan Poor-law Bill was introduced into Parliament. This Bill provided for the classification and separate treatment of the sick by the establishment of workhouse infirmaries, recommended the employment of paid and qualified nurses, and directed that all medicines and medical appliances should be supplied by the guardians and not out of the salaries of the medical officers, as heretofore. It is indeed astonishing in these days to realise that at one time institutional medical officers had to supply drugs and appliances at their own expense, so that the worse he performed his duties the more salary he was able to make.

EVOLUTION OF LEWISHAM HOSPITAL.

This spirit of minimal activity in the treatment of the sick in Poor-law institutions has, however, survived until quite recent date. We now turn to Lewisham Hospital, and it may be interesting to glance at the stages of its evolution.

Before the year 1894 the sick poor of Lewisham were treated in the voluntary hospital and in the sick wards of the workhouse. In April, 1886, the Local Government Board sent their inspector to discuss with the guardians the great need of additional accommodation for sick, as the sick wards of the workhouse had been very much overcrowded during the past winter. In the following August the officials of the Local Government Board advised that a separate infirmary—i.e., entirely separated from the workhouse—was absolutely necessary. By December, 1886, there was no further room in the workhouse for patients, and some were boarded out with other unions. In July, 1887, the guardians submitted a scheme for converting one of the workhouse blocks, together with the erection of two additional blocks for the sick, in order to avoid the purchase of land and the erection of a separate infirmary. The Local Government Board would not sanction this, and pressed the guardians to proceed with the more ambitious scheme, pointing out that Lewisham had a rapidly increasing population for which to cater.

In November, 1887—i.e., after one and a half years of discussion, the guardians decided to provide a separate infirmary. In May, 1888, the Local Government Board again called attention to the state of affairs, that the existing medical and nursing arrangements were quite inadequate. Finally, site, plans, contracts, &c., were all arranged, and the completed building was opened on Oct. 10th, 1894 (eight and a half years after the shortage of accommodation had been felt), with a certified accommodation for 379 patients. There was a medical superintendent (Dr. F. S. Toogood) and one assistant medical officer. It is interesting to note that no provision of any kind was made for an operating theatre. As a matter of fact I believe that it is true that of all the Poor-law hospitals of London not one had an operating theatre designed at the time of building! At this time the building was called the Lewisham Union Infirmary for the Destitute Poor. Also about this time the total population of the Lewisham Union was about 106,000 (1896). About 1899 the mental wards were added; otherwise there has been no increase of accommodation by new buildings up to the present time.

After the war the workhouse was abolished and the accommodation given over for extra nurses, maternity and antenatal clinic, and ordinary sick wards—accommodation very unsatisfactory and quite out of date. Now you can see the new hospital block (278 beds) and new nurses' home well on the way to completion. These wards are quite modern and up to date in design, and are hospital wards and not the old-fashioned infirmary wards. These extensions conform to the policy suggested by the Ministry of Health. "Any extension approved at the present moment must not only be justified by immediate needs, but should be of such a character that they are likely to meet the needs of a reconstituted health authority (including Poor-law) for the area" (Annual report of the Chief Medical Officer of the Ministry of Health for the year 1925, p. 194, para. 404.)

It is also hoped in the comparatively near future to adapt the old buildings to make new receiving wards, out-patient clinic, new X ray room, &c., as the accommodation in this respect is highly unsatisfactory. That this fresh accommodation is needed is quite obvious from our chronically overcrowded wards and from the fact that the population has just about doubled since 1894 (212,000) and is still rapidly increasing.

Equipment.—In the early days of the separate infirmary the equipment was of the barest—no theatre, no special departments or aids to diagnosis. And the task of the then medical superintendent must have been depressing to a high degree. Slowly but surely he began to develop the place, improvised an operating theatre, and brought the institution up to the standard that many knew well before the war.

SURGERY AT THE END OF LAST CENTURY.

Modern surgery, especially in regard to abdominal operations, had not in 1894 come fully into its own, and indeed hardly did so before the new century commenced. Poor-law infirmaries at that time were many years behind the times, and the thought that the diseases of the destitute sick poor required the same facilities for treatment as those of others appeared to be overlooked, and little else than bed, food, and a certain kind of nursing was available. In any case, had facilities for treatment been available, the scanty medical staff would have been quite unable to cope with the number of cases. In these early days, therefore, those who could went for treatment to the voluntary hospitals and did all they could to avoid the pauper taint. Hence there was a tendency for the old, infirm, and chronic cases to gravitate to the infirmary, and for the acuter cases to go elsewhere, where the facilities for treatment were known to be better. It must also be borne in mind that for many years the training of nurses in Poor-law hospitals was non-existent. As early as 1860 Florence Nightingale had opened a training school for nurses at St. Thomas's Hospital. It was not until 1881 that training schools for nurses were established in Poor-law infirmaries. In 1902 was published a report of the Departmental Committee appointed *ten years previously* to consider matters connected with the Poor-laws, especially in connexion with the nursing of the sick, and at long last the Nursing Orders of 1913 were promulgated by the Local Government Board, in which all superintendent nurses or matrons were required to hold certificates of three years' training in the wards of a hospital or infirmary which was a training school, and also to hold a certificate as midwife under the Act of 1902.

We may well pause for a moment to consider how it was that such a long period of minimal activity as from 1860 to 1913 in the progress of the Poor-law medical and nursing services was possible, more especially if we compare the post-war interest and progress. The following factors, in my opinion, have considerable bearing. In the early part of this period medical, and more especially surgical, treatment had not reached the stage of development which necessitated the presence of the patient in a hospital ward, surgery especially being confined to comparatively few operations, which were performed by a limited number of surgeons. The voluntary hospitals could therefore meet this need entirely. The taint of pauperism and the traditions which developed from the Poor-laws of about 1601 (in those days any pauper who left his parish was liable to be whipped at the cart-wheel) has, until very recent times, prevented the sick from seeking accommodation in Poor-law infirmaries. The penalties meted out to the able-bodied poor and to the sick poor were practically the same, loss of the franchise, and so forth. Therefore it would appear to be fairly obvious that no inducement was given to the poor to make use of these institutions in sickness, except as a last resource; which attitude of mind and ideal of service is the very antithesis of that which should pervade a service designed for the alleviation and cure of disease.

POST-WAR PROGRESS IN POOR-LAW INSTITUTIONS.

Now we may turn with a certain amount of relief to the present. And we may now ask why is it that the post-war progress in Poor-law institutions for the sick has made, at any rate in London (I know little of the provinces), considerable strides, and are now catering for such a large number of acute cases—not a gradual alteration in the curve towards efficiency but quite a sharp rise.

1. The overcrowding of the voluntary hospitals—the fact that they had not expanded with the need of the population, and that hospital in-treatment is growing in scope and a comparatively large percentage of the populace are admitted either for investigation or treatment. This congested state of the voluntary hospital inevitably throws more work on to the Poor-law hospitals, at any rate in Lewisham, and especially of the class of case known as "acute abdomen" and other cases of the very urgent type.

2. I think that there is a greater inclination for patients to go into hospital than before the war. During the period of military operations vast numbers of the male population passed through hospital, many of them converted Poor-law institutions, and so have got used to hospital life. Further, many of the Poor-law hospitals have never gone back to the pre-war standards, are now named hospitals, and the common people enter them with greater confidence.

3. The most important factor, however, in my opinion, which has contributed to the progress of Poor-law hospitals, has been that enormous growth of humanitarian and altruistic feeling in general

which has taken place in England during the last century, and which has suddenly, so to speak, burst into flower. Whether *all* the manifestations of this humanitarian growth are to the advantage of the race is not a matter for present consideration, but that it is part of the moral equipment of modern man can hardly be denied. Trotter ("Instincts of the Herd in Peace and War," second edition, p. 124) says: "Throughout the incalculable ages of man's existence as a social animal, nature has been hinting to him in less and less ambiguous terms, that altruism must become the ultimate sanction of his moral code. Her whispers have never gained more than a grudging and reluctant notice from the common man and from those intensified forms of common man, his pastors, and masters . . . and when it has been interpreted to the people it has always been received with obloquy and derision, with persecution and martyrdom. Thus, as so often happens in human society, has one manifestation of herd instinct been met and opposed by another."

It is interesting to cast one's vision back a moment for 100 years.

. . . Mr. Justice Park at the Spring Assizes at Salisbury in 1827 said, that though the calendar was a heavy one, he was happy to find on looking at the depositions of the principal cases, that they were not of a very serious character. Nevertheless he passed sentence of death on 28 persons, among them being one for stealing half-a-crown! (W. H. Hudson, Collected Works, 1923, "A Shepherd's Life," p. 225.)

What a change has taken place in 100 years! I have perhaps strayed a little from the path, but have done so to try to show what powerful and at times partially unnoticed forces guide the destinies of the human race.

Poor-law Hospitals Expanding.

Now we must consider in more detail what have been the happenings in Poor-law hospitals since the war. The first thing one notices is a large number of medical superintendents of Poor-law hospitals, with their mouths wide open and like Oliver Twist, asking for more! More medical officers, more nurses, more beds, better equipment, more aids to diagnosis and treatment, and so on, and I think that in spite of many obstacles and difficulties, much has been accomplished, and to find illustration we come back to Lewisham Hospital.

The resident medical staff before the war was three in all with no part-time consultants. Now there are five resident medical officers, one of whom does part-time as district medical officer to one of the divisions of the union; three part-time consultants, physician and surgeon and radiologist; and also we have the help and advice of the pathologists at St. John's Hospital, who at present do our pathological work at their own laboratory. Further, power has been given to the medical superintendent to call in any other consultant that he may choose at a fixed fee per visit. The value of these arrangements is incalculable, but they mean extra work for the resident staff, and not *less* work.

There is now an antenatal clinic held weekly to enable those on our maternity books to be examined from time to time. The nursing staff has been considerably augmented in numbers and the training school made more efficient by the appointment of a sister tutor, who devotes the whole of her time to the training of the nurses.

The ambulance service, which before the war consisted of one horse-drawn vehicle, is now provided by three well-equipped motor ambulances.

The X ray department was non-existent before the war; now some 2000 X ray examinations are made yearly, representing actually about 1000 patients examined, and it is hoped to move the X ray department to more commodious quarters and to bring the apparatus fully up to date and to increase the scope of the work by doing X ray treatment.

There was no massage department before the war; there are two fully-trained masseuses now. There again, it is hoped before long to find better accommodation and to add artificial sunlight treatment, &c., to its activities and to increase the facilities for electrical treatment, exercises, &c.

The pathological work done before the war was very meagre in extent. Now, facilities for extension of this work were arranged with St. John's Hospital, but it is hoped that in the not distant future we shall have a fully-equipped laboratory of our own. One method by which the congestion in the wards is relieved is by referring in-patients to the out-patient department for continuation treatment, and many cases can thus be discharged earlier than otherwise would be possible. This work is done by the medical officer who does the district worked in connexion with the hospital.

A very considerable number of casualties are brought to the hospital for emergency treatment—at the rate of more than 2000 annually. The London County Council ambulance in 1926 made nearly 1000 visits to the hospital. No proper organisation or department exists for this work, but it is hoped that proper arrangements will be made at some future date.

I have already mentioned the new building scheme which is now far advanced, and will here only mention the operating theatre accommodation. It is an astonishing thing to me that so few of the London Poor-law hospitals have adequate operating theatres. I believe that in all they are adaptations of rooms or of post-war date. I once mentioned this to a highly-placed official, and he said they were not called operating theatres, but were worked in as "operating rooms"; presumably that undue attention might not be called to the fact that the Poor-law infirmary medical superintendents were trying to do their jobs! At Lewisham a side ward was adapted as operating theatre without proper light or ventilation and with no anæsthetic room; in this theatre at present some 1200 to 1300 operations are performed yearly. Now, within a few months, a really first-class theatre, with all its necessary adjuncts, will be available, adding enormously to the comfort of the patient and efficiency of the surgeon.

THE GENERAL PRACTITIONER AND THE POOR-LAW HOSPITAL.

Now at long last we come to the general practitioner. What are his relations to the Poor-law hospital? He is our father and our mother, for surely he supplies us with all our sustenance. He is the person who overcrowds our wards and who sends in patients at all hours of the day and night! And from a practical point of view—especially in places such as Lewisham, which has no very large number of voluntary hospital beds within reach—it is the needs of the general practitioner which have to be met. And I foresee that this state of affairs will become more evident, and that a greater number of Poor-law hospitals throughout the country will have to adapt themselves to the needs of the local practitioners, as it seems doubtful whether the increased accommodation needed for the future will be entirely met by increased voluntary hospital accommodation.

Methods of Admission.

It may now be useful to glance at the methods by which patients were formerly admitted.

Theoretically no case should be admitted to Lewisham Hospital except on an order signed by a relieving officer and countersigned by the district medical officer—that is to say, that an ordinary general practitioner has to have his case "vetted" by the district medical officer before it can be admitted to hospital; the only exception to this rule (other than legal transfers, admissions through the clerk to the guardians, &c.) are in cases of sudden and urgent necessity, when the medical superintendent of the hospital may admit on his own order. Just imagine the waste of time, the delay to the patient, and the bother to everybody if such a rule were still enforced!

The methods employed at present are as follows:—

1. The doctor sends a certificate of recommendation to the relieving officer, who issues the necessary order for admission to the hospital and arranges for the ambulance if needed.

2. The doctor rings up the medical superintendent or his deputy at the hospital in very urgent cases, leaving a certificate of recommendation for admission as an *urgent* case at the patient's house. The medical superintendent then despatches the ambulance, but having had no opportunity of seeing the patient he cannot form any judgment of its urgency and has to rely entirely on the opinion of the general practitioner, so in the end it is really he—the general practitioner—who decides whether the patient is a case of "sudden or urgent necessity." All cases admitted thus are technically made paupers, but the only thing they forfeit now is the capacity to become a guardian or a councillor.

At Lewisham Hospital soon after the war an arrangement was made by which urgent cases, willing to pay the full cost of maintenance, could be admitted on the recommendation of a general practitioner by

an order signed by the medical superintendent, thus avoiding dealing with the relieving officer and being subjected to a none too pleasant inquisition. This arrangement, I feel sure, has relieved doctors many times of the anxiety of finding immediate accommodation for an urgent case who is desirous of avoiding going through the relieving officer. The money for maintenance is collected by the hospital almoner.

Now the Poor-law hospital is like the widow's cruse, apparently inexhaustible in the matter of beds; it can never say "house full"—that is to say, cases other than infectious cases are never refused, and this entails constant overcrowding of the wards with extra beds, so reducing materially the air space per patient—none too much in the older Poor-law hospitals—besides being an extra tax on the nurses of the ward. Thus we see that the general practitioner always has access to beds in these hospitals for his patients, and that the mode of entry on the whole is extraordinarily easy, very much easier than ringing round the London hospitals to find one which will (1) take the type of case or (2) has a bed to put it in. Voluntary hospitals can pick and choose and, as far as I know, never put up extra beds. It is to the Poor-law hospital that the general practitioner sends most of the mental cases which come his way; the method of entry under legal restraint for observation and possible certification is the quickest and easiest way for a doctor to deal with an urgent case of mental derangement.

At Lewisham Hospital the mental wards have been shut down because of the structural alterations taking place, and the mental cases of the Lewisham area seeking Poor-law relief have to be taken to St. John's Infirmary, Highgate. Any mental cases inadvertently coming to Lewisham have to be put in a general ward pending transfer, a most undesirable state of affairs.

USES AND ABUSES OF THE PRIVILEGE OF EASY ACCESS.

Now to what uses and abuses does the general practitioner put this privilege of easy access? He can without fail get his urgent cases—especially those demanding immediate surgical or obstetrical interference—into hospital (in the case of Lewisham, fairly centrally placed). His patients can be swiftly and easily moved. If time permits he can run in and see his patient from time to time. Visiting times for relatives are easy and generous, and they meet many of their friends during an afternoon's visit to the hospital. The general practitioner thus can very quickly rid himself of the responsibility of these urgent cases (a responsibility which, of course, he cannot go on holding after his diagnosis has been made), always provided that the Poor-law hospital to which he sends his patients has both the staff, equipment, and skill to deal with the case. Therefore I repeat that the needs of the general practitioner, especially when perhaps rather isolated from the voluntary hospital accommodation, are important factors in the development of Poor-law hospitals.

Now—I feel a little like Daniel in the lions' den—now we come to the abuses to which Poor-law hospitals may fall a prey, and to the errors which the general practitioner may make from time to time.

1. The admission of dying patients; this is only too frequent. The number of cases which come in and die within a few hours is out of all proportion to the number of mistakes of diagnosis or prognosis, into which errors, of course, we are alike liable to fall.

2. The moving of cases which should not be moved or should only be moved at the right time. Cases of sudden hæmoptysis, hæmatemesis—these patients should not be moved indiscriminately, but only after some rally has taken place. Many times have I been asked to take in this type of case at once. Pneumonias are often sent in at the time of the crisis; in my opinion an absolutely fatal thing to do.

3. Cases of abdominal disease are sometimes sent in and morphia has been administered beforehand. This obscures physical signs, and the doctor does not always inform us of what he has done.

4. Cases sent in at unreasonable times. This class of case is unfortunately a large one, and practitioners sending ordinary cases in at times which cause absolutely unnecessary disturbance of the patients in the wards give extra work to the already depleted night staff, may cause an ambulance driver to be got out of bed, and the medical officer robbed of his well-earned rest. To give an example. An ordinary case of quinsy was once sent to the hospital at 12 midnight. It is with extreme frequency that ordinary cases are sent in after the ordinary working day is done and when the receiving ward staff has gone home. One gentleman has a fine reputation amongst us for sending in his cases on Sunday.

5. Practitioners, I regret to say, sometimes fail to notify us of the fact that the patient is either suffering from or is a contact of some infectious disease. As examples, one case was sent in labelled as cholecystitis; she was really suffering from gonorrhœa, and told us that her doctor had told her that if he gave the right disease the relieving officer would not give her an order. On one occasion a maternity case was sent when in labour and no mention was made by the doctor, although he must have known that she was also suffering from secondary syphilis.

6. Mental cases are from time to time sent in as neurasthenia, and whilst realising the difficulties associated with this class of case, I would ask you to consider the effect that the admission of a case of this sort has on the morale of the other patients.

7. Patients are from time to time sent in without being examined at all, and others, although they have not been seen for some days. There is absolutely no excuse for this.

8. Cases are sent in with inadequate information supplied; a good example is that of maternity cases on which some operative measures have already been carried out.

9. In my opinion practitioners are too fond of telling the patient what is going to be done to them in hospital. They even sometimes direct what is to be done, and I will give you a striking case. A maternity case was admitted with a certificate from a doctor stating that it was a case of obstructed labour, and was sent in for Cæsarean section. Unfortunately, besides sending us directions as to what to do, this doctor told the husband that the patient was going to have Cæsarean section in order to get a living child. As a matter of fact the case was one of hydramnios, with an enormous amount of amniotic fluid, and when this was allowed to drain away the patient, after a very short normal labour, delivered herself of a small macerated, anencephalic fœtus. It was no easy matter to explain matters satisfactorily to an already much harassed husband!

It may here be suggested that it is very unwise to place too much credence on what a patient or his relatives say that the doctor said. For my part I disbelieve the average patient in this respect on principle, so often does he put into the doctor's mouth what he himself thinks and sometimes believes.

10. During dense fogs I am always astonished at the practitioners who want an acute chest case moved to hospital.

11. Sending suckling babies for comparatively trivial treatment as in-patients should be avoided, as either the mother has to come to the hospital to feed the child or else it has to be weaned, neither of which alternatives is satisfactory.

12. Finally, certificates sent to relieving officers are not always marked urgent when the case really is so. Only recently a case marked (?) perforated duodenal ulcer was not marked urgent, and several hours of unnecessary delay occurred before the patient was sent in. Luckily the case turned out to be something else.

I have not touched on the future of the general administration of Poor-law and the changes that are likely to take place in the near future. These things are outside our consideration this evening, and whatever changes do or do not take place the Poor-law hospital—perhaps under another and more dignified name—will still exist and the general practitioner will still remain, with his increasing demands upon its beds.

WEST MIDDLESEX HOSPITAL.—Brentford guardians are proposing to add 81 beds, a new maternity block, and more accommodation for electrical treatment to the West Middlesex Hospital, which already holds a good record for up-to-date methods.

CROYDON GENERAL HOSPITAL.—The King and Queen visited this hospital recently, when the Queen unveiled a stained-glass window commemorating her visit. Their Majesties made a tour of the new hospital buildings which includes a new out-patient's department, opened shortly before their visit by the Archbishop of Canterbury. The cost of the building was £30,000.

THE INCIDENCE OF INTRATHORACIC TUMOURS IN MANCHESTER.*

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MOST of those who have had recent experience of the post mortem work of the Manchester Royal Infirmary have formed an impression that the incidence of intrathoracic tumours there is high. This has led to the suggestion that air pollution, which is exceptionally great in Manchester, may be a factor in the production of these tumours. In various other centres, both in Europe and in America, recent investigations [1] have made it appear that the incidence has increased in late years, and it has been thought that a similar increase was noticeable in Manchester. In order to ascertain so far as possible the actual state of affairs it was decided to make an investigation and analysis of all the cases which have been entered in the autopsy registers at the Infirmary up to the end of the year 1926. With regard to the problem of air pollution no satisfactory conclusion can be arrived at until the figures thus obtained can be compared with those from a number of other towns where there is more or less atmospheric purity, and it is with a view to arousing interest in the subject in other centres, so that investigations along similar lines may be carried out, that these findings are now being published. In this research it has been possible to study a large number of cases, and since it is only by the examination of large numbers, where numerous comparisons can be made, that many of the difficulties in differential diagnosis are made manifest, it has been thought permissible to discuss some of these difficulties for the guidance of those who may have less material on which to base their conclusions.

Incidence.

Registers of all autopsies performed at the Manchester Royal Infirmary since the year 1868 have been kept and, with the exception of the volume containing the medical autopsies of the year 1910, all are available for reference. These records have been carefully searched and every case where tumour-growth of the thorax was reported has been noted and considered. From amongst them have been chosen only those cases in which the evidence was conclusively in favour of their being primary intrathoracic malignant growths.

The first recorded case occurred in the year 1871, and in the years following, till the end of 1926, 175 cases have been discovered, as is shown in Table I.

TABLE I.

Years.	Post-mortems	Cases and percentage.
Up to the end of 1885	2107	5 (0·24)
1886–1890	1014	16 (1·58)
1891–1895	1175	15 (1·28)
1896–1900	991	12 (1·21)
1901–1905	1083	26 (2·40)
1906–1910	898	12 (1·34)
1911–1915	1141	27 (2·37)
1916–1920	910	22 (2·42)
1921–1925	1126	29 (2·57)
1926	335	11

It must be admitted that conclusions drawn from statistics of the cases which come to autopsy at a teaching school are open to criticism, for there must always be a tendency, in choosing cases for post-mortem examination, to choose those which have unusual features and to press more urgently for permission to examine such cases. Thus the pathological conditions which are most common in man are not those most commonly revealed in the post-mortem room. With the use of X rays as a method of diagnosis the recognition of tumours in the thorax is simplified, and it is probable that many cases which, 30 or 40 years ago, would have been passed as cases of pulmonary consumption are now recognised as of neoplastic nature, and are therefore deemed more valuable for the purpose of pathological instruction. Similarly in the admission of cases to a general hospital there must often be a certain amount of selection, because it is so frequently necessary to choose from amongst a waiting list only such cases as will most certainly benefit by hospital treatment. Nevertheless, when a large number of cases, gathered from a period extending over several years, can be examined, much may be learned regarding the tendencies of a pathological condition, and, in considering the figures in Table I., the slight increase in the percentage of cases cannot be disregarded. Although this increase is perhaps less than may have been anticipated, it is an appreciable one, and it seems permissible, even in view of the above-mentioned sources of error, to conclude that it indicates a true increase in the incidence of the disease.

In order to show how these figures in Table I. compare with the case-incidence in the hospital wards, Dr. E. M. Brockbank has kindly furnished the information given in Table II.

TABLE II.—*Numbers of Intrathoracic Neoplasms in the Wards during the Last Six Years.*

In 1925 ..	.. 27	in 2657 cases.
1924 ..	.. 20	„ 2656 „
1923 ..	.. 21	„ 2679 „
1922 ..	.. 27	„ 2677 „
1921 ..	.. 26	„ 2904 „
1920 ..	.. 27	„ 2821 „
	148	16,394 = approx. 0·9 %.

The fact that the percentage in the ward records tends to be lower than in the autopsy records seems to show that these latter are in no wise an accurate representation of the general incidence of the tumours. The high percentage in the autopsy records is probably in great measure due to the fatal nature of the disease.

The selection of true cases of primary intrathoracic tumours was difficult and was open to error. In only 78 of them did the material for histological examination still exist and without such material and with no more information than is furnished by a sometimes very brief post-mortem report, it was frequently impossible to be sure of the nature of a case. For instance, it was sometimes difficult to determine the site of a primary growth in a case where tumour nodules were numerous and widespread throughout the body. One such case, where enlargement of the mediastinal glands and infiltration of the lungs were present along with tumour masses in both kidneys, showed a microscopic appearance which corresponded so closely to that of a typical renal cancer that it was decided to discard it in spite of the fact that it had been classified as a mediastinal tumour. Again there was difficulty in eliminating with certainty all cases which were not of true neoplastic nature. In this respect Hodgkin's disease gave rise to serious difficulty. There appears to be no certain method, other than microscopic examination, of distinguishing lymphadenoma of the mediastinal glands from tumours arising at the root of the lungs. Lymphadenoma is capable not only of causing enormous enlargement of these glands, but also of penetrating deeply into the lungs and bronchi, giving rise to ulceration, obstruction, and suppurative bronchiectasis, so that it may simulate in almost every respect a bronchial cancer. Unfortunately the difficulty is not always removed by microscopic examination, since, at some early stages in the progress of the disease the tissues may in parts appear so highly cellular as to resemble a small or mixed cell sarcoma, and it is only the recognition of the large, lymphadenoma cell that renders the diagnosis certain,

* This research was carried out under the auspices of the Manchester Cancer Committee.

[1] A bibliography of recent papers will be found in the appendix to this paper.

This point cannot be too strongly emphasised, for there is much evidence to show that confusion in respect of these cases has existed in the past, even after microscopic examination has been made. In dealing with the cases where no histological material was available, the feature which was considered to be most strongly indicative of Hodgkin's disease was the presence of secondary nodules in the spleen, and accordingly all such cases (of which there were five) were discarded. This measure is not altogether satisfactory because, on the one hand, cases of Hodgkin's disease may at an early stage show no involvement of the spleen, and, on the other hand, secondary growths in the spleen, although perhaps uncommon in cases of primary tumour of the thorax, may sometimes be found, as was shown by one case in the collection. It was, however, considered best in the choice of the cases to impose restrictions calculated to cause under-estimation rather than over-estimation of the numbers.

Age- and Sex-Incidence.

The figures in Table III. are for the most part in agreement with the findings of other observers.

TABLE III.

In 175 cases { 151 were males = 86·29 %
24 „ females = 13·71 %

In 173 cases where the age of the individual was given :—

Cases.	Years.	Cases.	Years.
5	were under 21	33	were aged 46–50
9	„ aged 21–25	25	„ „ 51–55
6	„ „ 26–30	25	„ „ 56–60
11	„ „ 31–35	5	„ „ 61–65
20	„ „ 36–40	6	„ „ 66–70
27	„ „ 41–45	1	„ „ 71–75

Occupational Incidence.

A record of the occupation of the individual was traced in 143 of the male cases. The largest number in any single occupation was found amongst labourers, and of these there were 28. Next to them in order of numbers came carters, of whom there were 9, and next to these clerks, numbering 8. In none of the other occupations were more than four cases recorded. It was found on counting the labourers in the former class that the outdoor and indoor workers were in nearly equal proportion, there being 72 outdoor to 71 indoor workers. The number of men who had described themselves as carters was striking, and this drew attention to those who registered occupations closely related in one way or another to that of carter. These total 25, and are set forth in the following list :—

Carters, 9; van drivers, 2; lorryman, 1; coachman, 1; teamster, 1; horse keepers, 2; ostler, 1; stableman, 1; tram drivers, 3; engine drivers, 2; tram guard, 1; railway guard, 1.

These represented all the transport workers in the list, so that such workers constituted 16·55 per cent. of all male cases.

With the help of a census list kindly supplied by Dr. W. S. McClure, of the Department of Public Health, Manchester, it was possible to compare the percentage of tumour cases in the various occupations with the percentage of the whole male population of Manchester in these occupations. It was found impossible to estimate with accuracy the numbers of outdoor and indoor workers, because many of the occupations specified in the list included workers in both these classes, but it could be judged that at least 75 per cent. of the adult population were indoor workers. Since, therefore, in the cases of tumour there were actually more outdoor workers than indoor ones, it may be concluded that the incidence is higher in the former class in a proportion of three to one. In the census list it was found that the transport workers constituted 12·34 per cent. of the total male population, whereas in the case list these workers, as stated above, constituted 16·55 per cent. of the male cases. In none of the other occupations were the numbers of cases large enough to allow of useful comparisons being made.

Morbid Anatomy.

In most of the cases the tumour was described as being large, filling the mediastina and involving one or other of the lungs, but it was frequently impossible from the description to determine whether the involvement consisted of a direct spread of the tumour into the lung or of a deposit in the lung of metastatic nodules. In two it was described as being situated in the anterior mediastinum, and one of these was reported to be a malignant tumour of the thymus. In our experience the smaller growths are usually seen to be situated in the walls of one or other of the main bronchi, near the bifurcation of the trachea. In practically all cases the neighbouring glands are affected, and it is frequently found that one or two of these glands, which can be recognised by their anthracotic pigment, are embedded in the growth and appear to form the centre of it. The spread into the lungs seems most frequently to be directed upwards to the upper lobes. A few secondary nodules in addition to the primary growth are frequently seen in the affected lung, but they are much less commonly found in the lung of the opposite side.

TABLE IV.—*Frequency with which the Lungs were Affected.*

Right lung	78 cases.
Left „	67 „
Both lungs	18 „
No lung involved	12 „

Although in these records the right lung was more often affected, necrosis and gangrene was more often noted in the left. Necrotic and suppurating cavities in the left lung were reported in 30 cases, and in the right lung in only 21 cases. Certain authors have explained the formation of these cavities as being the result of necrosis and breaking down of tumour nodules with the escape of their contents into the bronchi, but it is often easy to demonstrate in the post-mortem room that they are of the nature of infective bronchiectatic cavities, resulting from ulceration and obstruction of the larger bronchi at the site of the primary tumour. It would seem, therefore, that whereas the right side is more commonly infiltrated by tumour, the left side is on the whole more liable to suppuration; the left bronchus being more frequently obstructed. Although in many of the older cases ulceration of the bronchi has not been reported, it has been present in practically every case within our experience.

Other thoracic organs which may be invaded by the tumour growth include the pericardium, the œsophagus, and the superior vena cava.

TABLE V.

The pericardium was invaded in	24 cases.
The œsophagus „ „	10 „
The superior vena cava „ „	9 „

Secondary growths were reported in the—

	Cases.		Cases.
Liver	27	Bones	8
Abdominal glands	26	Brain	2
Adrenals	18	Spleen	1
Kidneys	9		

Classification.

Only those cases in which histological material is still available are discussed in this section. In a great number of the earlier cases no report of a microscopical examination was made, and in these almost invariably the diagnosis made at the sectio was that of lympho-sarcoma of the mediastinum. Similarly the cases on which there were microscopic reports were most frequently found to have been classified as lympho-sarcomata, and it appears to have been customary to classify them as such, not so much from their micro-scopic appearance as from the fact that they were situated in the mediastinum. Since, as will be shown, lymphosarcoma is in reality a rare occurrence in the mediastinum, it was decided to disregard, for purposes of classification, all microscopic reports.

Material from 78 cases in the collection was examined histologically. Since the purpose of this paper is simply to give a statistical account of the incidence of intrathoracic tumours, an exhaustive description of their histology would be out of place here, and only

such summary of the features of the different main groups as will explain our method of classification will be given. With but 10 exceptions the whole 78 were included in the following two groups.

Group I. comprises the more or less typical and long recognised carcinomas of the bronchi. These include two different types: first, the large spheroidal or polygonal-celled alveolar type; and, secondly, the squamous or epidermoid type. In the first the structure and cells of the tumour usually bear some resemblance to the bronchial mucous membrane or to the mucus-secreting glands of the bronchi (Fig. 1), so that their recognition in view of their situation and macroscopic appearance is usually easy. In the second type the epithelial cells show metaplasia to a squamous form such as may frequently be seen in the epithelium of chronically inflamed bronchi, with the result that the tumours (Fig. 2) somewhat resemble epitheliomata of the buccal mucosa. They are composed of irregular masses of polygonal and spindle-shaped cells with deeply staining nuclei. The former cells are frequently arranged roughly in columns along the borders of the masses in the manner of the basal layer of the rete mucosum of Malpighi, whilst the spindle cells lie internally, often forming a whorl converging towards the centre of the mass. In a small number of cases cell-nests develop in these whorls, but prickle cells have not been shown in any of the cases.

Group II., with seven exceptions, consists of tumours which are now commonly described as oat-cell tumours of the mediastinum. The true classification of these growths is not finally decided, but there is a growing opinion that they are, as W. G. Barnard [2] has recently suggested, of the nature of medullary cancers of the bronchi. As will be shown, there is much evidence in the present material to support this opinion, notwithstanding the fact that the general microscopic appearance of many of them has undoubtedly in the past led to their being classified as lymphosarcomata, and thus to lymphosarcoma being considered a common tumour of the mediastinum. If one may take the structure of the lymphosarcoma to be that described by Ewing [3] and by other authorities—namely, a structure composed of lymphoid cells enmeshed in a delicate reticulum, such as is to be seen in malignant tumours of lymph glands in other parts of the body—it will readily be appreciated that these oat-cell tumours have no claim to such a classification. In them the cells, although they are usually small, may show a variation in size ranging from that of a small lymphocyte to that of the cells of the squamous type in Group I. They are characteristically oval or spindle-shaped (oat cells), though there is much variation in their degree of elongation, and they contain relatively large, darkly staining ovoid nuclei. They are arranged in solid masses surrounded by a framework of irregular bands of connective tissue wherein lie the blood-vessels of the tumour (Figs. 3, 4, 5, 6). In some the connective tissue is very plentiful, covering large areas, so that a considerable proportion of the tumour is fibrous (Fig. 6). In the cell masses there is a complete absence of intercellular reticular tissue and of capillaries, the tissue being dependent for its vascular supply on the vessels of the connective tissue bands. In the small cell variety (Figs. 3 and 4) the cells are sometimes rounded and less elongated, and may thus resemble lymphoid cells. The seven exceptions mentioned above are approximately of this type. They are tumours composed of small round cells (Fig. 7), and although all of them contain a few spindle cells, especially at the margins of the cell masses, these cells are not numerous and prominent enough to permit of the descriptive term "oat cell" being applied to the tumours. In every other respect, however, these cases conform to the type under discussion, and it seems most reasonable to classify them along with this second group. In the small-celled type the cells are frequently loosely arranged and form large masses which sometimes cover two or more fields of the microscope and are interrupted only here and there by sparse connective tissue strands. Sometimes these strands are little larger than the vessels they support, so that the latter appear to be isolated and in close contact with the tumour cells, when the likeness to a sarcoma may be considerable. In such places the cells are sometimes seen to radiate out from the vessels as in a perithelial sarcoma, but closer examination always reveals that these vessels, unlike those of a sarcoma, are stout-walled and possess an adventitial fibrous coat which represents the connective tissue framework of the tumour. In the large-celled variety (Figs. 5 and 6) the cells tend to be more closely packed and to form numerous small clumps. They tend also at parts to be more elongated and sometimes to form bundles and whorls, while at the margins of the masses column formation may be seen. In such tumours there may be a distinct resemblance to basal cell cancers, and in a few the cells at the centre of the mass may be seen to have fused and become hyaline, so that structures resembling cell-nests are formed (Fig. 8), making it appear that the relationship of these oat-cell tumours to the squamous tumours of the bronchi is very close.

In this second group structural variations too numerous to describe are found, and it is realised that many observers may not favour the inclusion of all the different types in the single class. Nevertheless, although there is wide variation in the structures, even the most remotely divergent cases appear to be inked together by a series of intermediate types which makes it difficult to see where any division in the classification could be made.

In the compilation of the group certain standards to which all the cases admitted have had to conform have been set. These are as follows: 1. The tumour cells form masses embedded in a framework of connective tissue which constitutes part of the tumour growth and is not merely a pre-existing tissue which has become invaded by tumour. 2. The vessels of the tumour are contained in the connective tissue framework and do not penetrate the cell masses. 3. The tumour cells are devoid of intercellular tissue.

These are standards which are applicable to true carcinomata and not to sarcomata or lymphomata, and while the small cell varieties may show histologically very little superficial resemblance to the usual conception of cancer, the fact that they conform to these standards, coupled with the fact that they seem closely related to other types which show a very remarkable resemblance to familiar cancers, seems to justify the classification of all these tumours as epithelial growths.

The similarity of the macroscopic appearance of the tumours of the different groups in no wise lessens the justification, for although the small oat-cell group tends to form larger and softer growths than, perhaps, does the tumour of the squamous type, the same may be said of the large spheroidal cell cancer. Indeed, it has been found repeatedly that the type of tumour cannot be determined from the naked-eye examination alone. All types arise about the roots of the lungs, infiltrate the bronchi, and cause enlargement of the mediastinal glands.

TABLE VI.—*Indicating the Number of Cases Contained in the Foregoing Groups along with the Average Age of the Cases in each Type of New Growth.*

	Type.	Number of cases.	Average age in years.
Group I.	Large-celled alveolar type	16	51·12
	Squamous celled type	13	46·61
Group II.	Oat-celled type	32	43·28
	Small round-celled exceptions	7	49·83

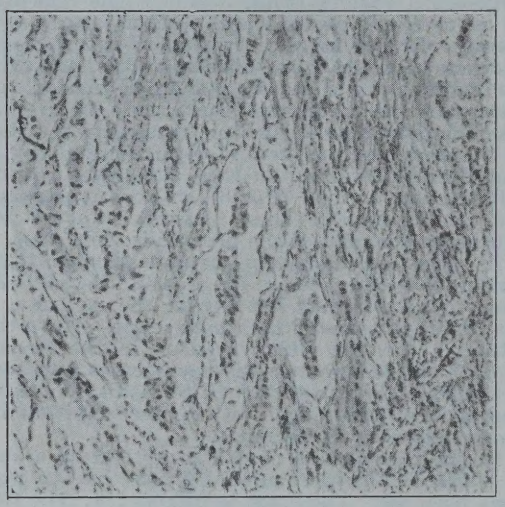
Exceptional Cases.

The following is a list of the cases which do not fall into either of the two foregoing groups. Notable amongst them are cases Nos. 1, 3, 4, and 8. These are tumours composed of spindle cells arranged in intertwining bundles. They are as a rule devoid of inter-

[2] Barnard: Jour. Path. and Bact., 1926, xxix., 241.
[3] Ewing: Neoplastic Diseases, 1919.

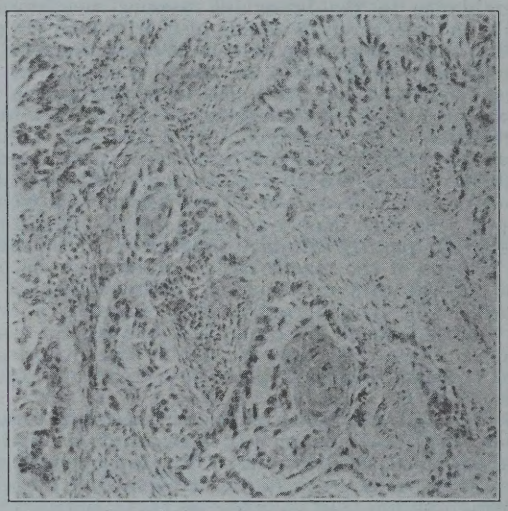
cellular tissue and the cells are of somewhat epithelioid type; some of them showing a slight resemblance to squamous cells, but the fact that the blood-vessels are very numerous and thin-walled prevents their being classified as epitheliomata. Their structure is one which is associated with growths of the pleura and, by some, they are considered to be of endothelial origin. As will be seen, in three of these four cases the pleura was especially mentioned as being affected.

FIG. 1.



A large-celled alveolar cancer showing a structure suggestive of an origin in the bronchial secretory glands. (× 120.)

FIG. 2.



A squamous cell tumour of bronchus showing cell-nest formation. (× 120.)

CASE 1 (22/510).†—Male, aged 36. Reported September, 1922, as "an endothelioma of both lungs." The tumour is composed of large, closely-packed spindle cells, some of which are irregular, branching, and almost syncytial.

CASE 2 (9274).—Male, aged 39. Reported August, 1918, as "a large tumour of the mediastinum with secondary nodules in right lung." Microscopically, a chondrosarcoma.

CASE 3 (8413).—Male, aged 41. Reported May, 1915 as "endothelioma of both pleuræ." A tumour composed of rather loosely arranged large spindle cells.

CASE 4 (8226).—Female, aged 31. Reported June, 1914, as "a tumour of possible thymic origin, involving left pleura and lung and invading pericardium." It is composed of large spindle cells amongst which there are a few polymorphic giant cells.

CASE 5 (8176).—Male, aged 26. Reported March, 1914, as "a tumour of mediastinum invading right lung, with metastases in abdominal lymph glands, adrenals, and bones." It is composed of small round cells amongst which there is a fine network of thin-walled capillaries and connective tissue fibrils. A possible lymphosarcoma.

CASE 6 (7699).—Male, aged 35. Reported September, 1912, as "a tumour of mediastinum invading left lung, bronchus, pericardium, and œsophagus." It is composed o small spindle cells amongst which there is a fine ramificatio of thin-walled capillaries. Although this case does no conform to the standards of Group II., the appearance of th cells suggests an epithelial type closely related to the sma oat-cell tumours.

CASE 7 (6176).—Male, aged 58. Reported May, 1909, a "a malignant growth of pleura." It is composed of rathe irregular, large, loosely arranged spindle cells. Some of thes

FIG. 3.

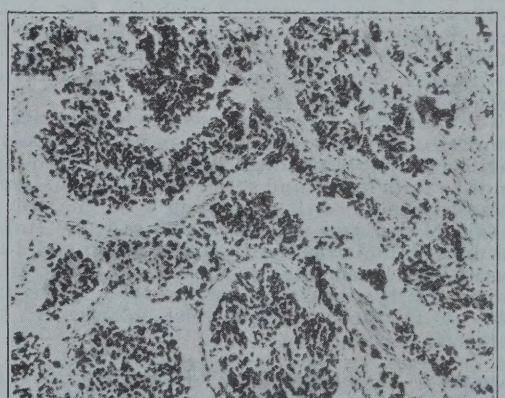
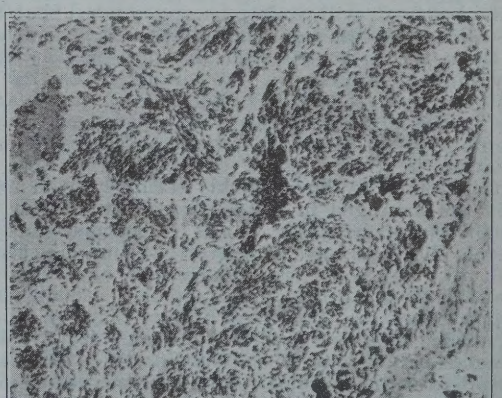


FIG. 4.



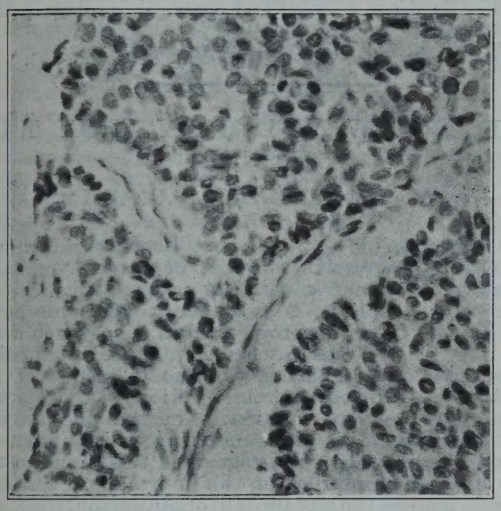
Small oat-celled tumours; the smaller celled tumour (Fig. 4) showing a larger cell mass. (× 120.)

† The case-numbers given in parentheses are those of the Manchester University pathological department day book.

appear to have branching processes so that there is a fine reticular appearance. The vessels are numerous and thin-walled. A tumour of very uncertain type.

CASE 8 (4140–1).—Male, aged 39. Reported September, 1903, as "endothelioma of left pleura with secondary nodules in liver and peritoneum." It is composed of large spindle cells arranged in whorl formation.

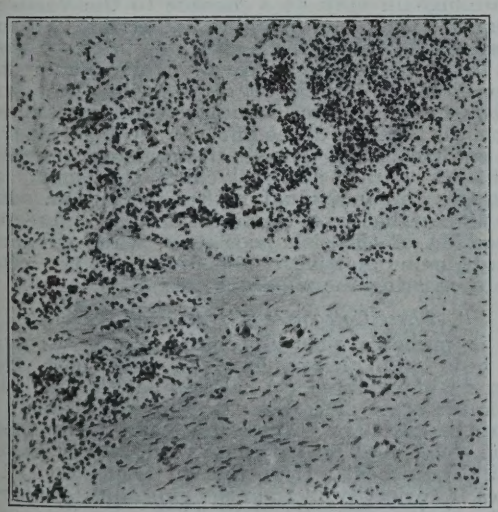
FIG. 5.



An oat-celled tumour with cells considerably larger than those of Figs. 3 and 4, showing the closer packing of the cells and the arrangement in columns at the margins of the cell masses. (× 300.)

CASE 9 (4139).—Male, aged 36. Reported September, 1903, as "a sarcoma of thymus not involving lungs." It is composed of closely-packed medium-sized, round cells. Only one section, which was stained in the year 1903, and which is in somewhat poor preservation, is available, so that an accurate description of the histology cannot be given.

FIG. 7.



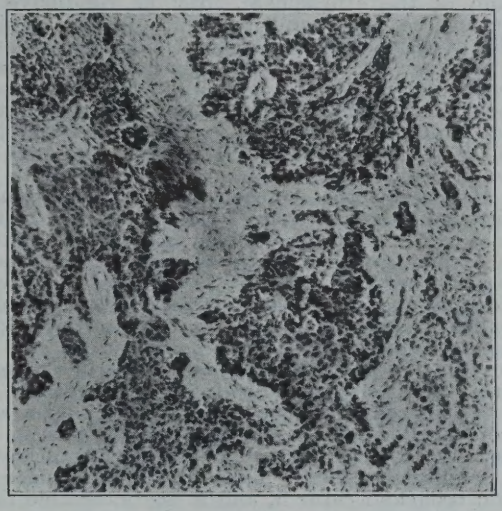
A small round-celled tumour in which the cell arrangement corresponds to that of the oat-celled tumours. (× 120.)

CASE 10 (1139).—Male, aged 26. Reported September, 1890 as "a mediastinal tumour invading left bronchus." It appears to be composed of large spindle cells like those of cases 22/510 and 8226. The only available section was stained in the year 1890 and is in a poor state of preservation, so that it is not possible to make sure of the classification in this case.

Discussion.

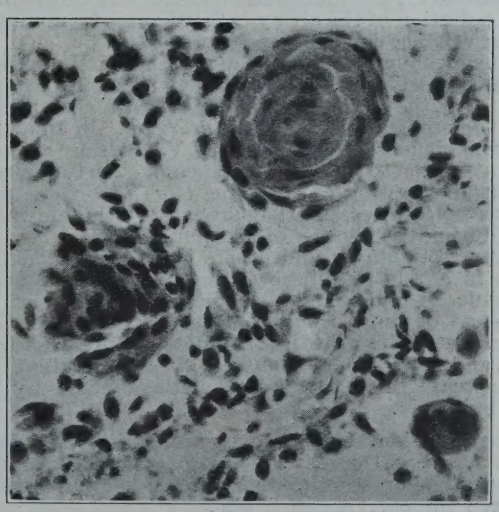
The value of these findings depends much on the question of the correct classification of the oat-cell tumours, or more especially on the question of whether or not they are tumours of the bronchi. If they are in reality bronchial cancers the findings would be the more valuable since it would then be shown that the bronchi, and not the mediastinal glands, are by far the most important structures in regard to tumour growths of the thorax. In Manchester bronchial cancers, instead of constituting only about 37 per cent. of thoracic tumours, would constitute considerably over 80 per cent. of these. The single fact that so many of the tumours arise in a tissue which is directly exposed to the atmosphere would encourage the suspicion that atmospheric impurity may be an important factor in their causation. Nevertheless it

FIG. 6.



A large oat-celled tumour; the structure in parts closely resembles that of the squamous tumours of the bronchi. (× 120.)

FIG. 8.



A medium sized oat-celled tumour in which the cells are undergoing a change like that of cell-nest formation in the squamous tumour. (× 500.)

must be some specific constituent of the pollution rather than the general atmospheric pollution itself that should be suspected, because the atmospheric conditions in cities are generally supposed to be improved since the coming into operation of the Smoke Abatement Acts, and were it simply a matter of a smoke-laden atmosphere, the incidence of thoracic tumours would be expected correspondingly to be on the decrease. There is strong evidence from elsewhere that special external conditions, probably through the medium of the atmosphere, may be conducive to cancer of the lungs and bronchi. In the mining district of Schneeberg, in Saxony, it has been shown that the men who work amongst ores of cobalt, bismuth, and nickel are especially subject to these tumours. Arnstein notes that one third of all the miners admitted to hospital in that district in the years 1907–11 were admitted with a diagnosis of pulmonary cancer.

In Manchester the figures point to no particular industry as being dangerous in this respect, but rather to those who are outdoor workers as being more prone to thoracic tumours than those who work in more sheltered conditions. It has been noted, however, that carters and drivers are comparatively numerous in the list of those affected. Obviously no conclusions can safely be drawn from such findings alone and all that can be done is to cite briefly some possible reasons for men of that class being so frequently affected.

In the first place, men who work in the open and are constantly exposed to weather conditions in an excessively damp climate such as that of Manchester may possibly be unduly exposed to the danger of chronic bronchial catarrh, and it is conceivable that such irritation may be a factor in the production of bronchial cancer; full enough information regarding the past histories of the cases to settle this point cannot now be obtained. In the second place, men who are much on the roads are exposed to an atmosphere which is very often heavily laden with dust and particles of most varied materials, and it may be that materials of a similar nature to those responsible for the high incidence of cancer among the Schneeberg miners may also be present in road dust. A relationship between cancer of the lungs and conditions of the highways has been suggested by other observers. Staehelin has suggested that the modern custom of tarring roads is responsible for the increased incidence and others have cited pollution of the air by exhaust gases from motor-driven vehicles as being a possible factor.

Thus although the figures derived from Manchester are in themselves insignificant, they are of importance in so far as they yield evidence which is in concurrence with the propositions of other observers. In an article on Branchiogenetic Carcinoma, R. V. Hudson [4] recently drew attention to the high incidence of such tumours in grooms, suggesting at the same time that these men are susceptible because they are liable to inhale much dust during the process of grooming horses.

Myer,[5] Berblinger, and others have considered that there is a relationship between the great influenza epidemic of 1918 and the recent increase in the incidence of lung cancers. Staehelin, however, has shown that the increase in Basle dates from earlier than 1918, and from the figures herein given it is patent that the increase in Manchester is little affected by the 1918 epidemic.

In conclusion, I wish to express my gratitude to Prof. J. Shaw Dunn, who first proposed the undertaking of this research, for his much help and advice towards the carrying of it out.

Appendix.

Among the more recent works which may be consulted on statistics of intrathoracic new growths are the following:—

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Lichty, J., Wright, F., Baumgartner, E.: Jour. Amer. Med. Assn., 1926, lxxxvii., 144.
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Oke, A., Perfilliet, P.: Practicheskaya Medic., Leningrad, 1926, 29–30; Cancer Review, 1927, ii., 78.
Staehelin, R.: Klin. Wchnschr., 1925, iv., 1853.
de Vries, W.: Nederl. Tijds. v. Geneesk., 1926, lxx., 255.

[4] Brit. Jour. Surg., 1926, xiv., 54.
[5] Frankfürt Ztschr. f. Path., 1922, xxvii., 517.

A POOR-LAW INFIRMARY FROM THE INSIDE.

BY F. J. O'DONNELL, F.R.C.P. IREL.

IT is impossible to work in a Poor-law infirmary, where the progressive changes of recent years are operative, without constantly speculating on its future as a hospital. Almost every day some event calls attention to the problem, and I have set down here impressions formed when I was resident medical officer at a large infirmary. The existence of the problem is admitted, but its solution is a subject of sharp divergence of opinion. On the one hand a purely negative attitude, emanating mainly from the voluntary hospitals, encourages the traditional ostracism and unpopularity of the infirmary. Such an attitude ignores the advances in organisation, tone, and equipment made in certain infirmaries within recent years, the implications of a State examination for nurses, and the tentative efforts, now some years on trial, to find a wider field of utility for such institutions.

On the other hand, a more enlightened outlook thinks that the infirmary could be more extensively utilised in the general campaign against disease. The antagonism to the progressive outlook, which is the only logical sequel to the labours which have brought the infirmary to its present stage of development, is difficult to understand.

It is true that reorganisation on the lines adopted in Birmingham may be a menace to the voluntary system, but it is questionable whether this particular scheme, even if feasible, is either desirable or would meet with universal approval. Inherent in it is obviously the danger of reproducing the whole problem in a new form. The problem is not merely to turn the facilities of the infirmary to better advantage, but to eliminate from its atmosphere that element which, its critics claim, "chills the soul" and submerges the individual in the institution. It is easy to see that over-classification and subsequent segregation of the sick poor may, while advancing towards one objective, be defeated at the other, thereby marring the whole process of approach.

Three Categories of Infirmary Patient.

It is probable that any large infirmary of say 700 beds will always have to deal with three categories of patients: (*a*) helpless patients, including inoperable cases of cancer; (*b*) the semi-invalids for whom the infirmary is the Cannes and Bournemouth of the rich; and (*c*) patients specifically in need of hospital treatment. If preventive medicine in all its phases is to justify in time the expenditure incurred on it, that justification should be nowhere more apparent than in a fall of the demands at present made on infirmary accommodation by types (*a*) and (*b*). As regards (*c*) it is admitted that the voluntary hospitals are congested, and that reasonably well-equipped infirmaries are only partially utilised. There is room here for coöperation between the two systems, without the slightest risk to the voluntary principle.

Envisaging then the infirmary as a unit in the hospital system, it is natural to inquire why it is still

regarded with suspicion and antipathy, and it will be apparent from such an analysis that the infirmary at present is handicapped by various anomalies, which nullify in great measure all efforts towards progress.

Although the statutory disabilities of admission to an infirmary may now be regarded as void, the mode of admission in conformance with Poor-law regulations is illogical since the advent of the panel system. Given a semi-State medical service, such as the panel system, it seems to me inconsistent for its staff not to be entitled to send patients in need of hospital treatment direct to a State-supported hospital without the intervention of another official—parish doctor or relieving officer. The panel system and the infirmary should be ancillary one to the other, and if this relationship is to be utilised to the utmost, intercommunication must be free and devoid of all unnecessary officialdom. The intrusion of the parish doctor between patients and their private doctors serves no useful purpose; it is a handicap on the scope of the infirmary and should be eliminated. Such a step should go far to allay the prejudice excited by the present procedure, while it should not be difficult at the same time to safeguard the interests of the guardians.

Abuse of Infirmary Beds.

While recognising how wide its net should be, one must admit that the present easy access to the infirmary is open to abuse. The transfer there from other hospitals of cases "gone wrong" or only partially treated, of patients from the local mental hospital on a month's probation (a procedure, I believe, without the slightest legal basis), of patients in the last stage of illness sent in to die—these are examples of abuse. Clearly in such cases the infirmary is regarded as a dumping-ground and is discredited accordingly.

Of the numerous functions devolving on the infirmary, none are more damaging to its reputation than the mental wards and the arrangements for advanced tuberculosis. Somehow these entities constitute for a large section of the community a miniature of the infirmary as a whole. The Poor-law mental ward is a travesty of the more humane outlook accorded of recent years to mental affliction, and, as such, its serious consideration is overdue. The presence in the infirmary of advanced tuberculous patients, however isolated, is apt to be regarded as a menace by the public—a very intelligible prejudice. There can be no doubt that the infirmary will have to shed these anomalous elements before much headway towards winning public confidence can be made.

The infirmary is also handicapped, both internally and externally, by its ill-defined status. Internally, although the guardians as a body may be enthusiastic on the development of the active side of the infirmary, there is an undercurrent of semi-official opinion distinctly sceptical about the capacity of the infirmary to become a progressive hospital force—a legacy no doubt of long association with the Poor-law. Externally, this handicap is expressed in the comparative failure of the infirmary, as a hospital, to carry the confidence of the public and the medical profession.

Lack of Coöperation.

The lack of coöperation between the infirmary and the outside medical world is also remarkable. The amount of acute illness treated within the year is considerable, the surgery done there is not negligible, the panel patients coming to the infirmary are numerous, and yet very rarely indeed is there any communication between the staff of the infirmary and the outside doctors. As far as my own experience goes what happens in the infirmary seems to count so little that even a brief history on admission and a brief report of progress on departure are dispensed with. Cases of difficult labour are received at the infirmary without any details of their history, or of what had been attempted outside in the way of treatment.

Again it has come within my experience that a large number of rheumatic children may be treated in the infirmary for months on end, but when the time comes for their discharge there seems, amidst the whole expensive maze of preventive medicine, no individual unit whose duty it is to take over their future supervision. School medical officers no doubt come across these children later on, but never once, in my three and a half years' experience, did an inquiry reach the infirmary about such children, well over a hundred in number. It was apparent, therefore, that the infirmary was isolated in its activities and regarded as something apart from other efforts to combat disease and promote public health, and that this isolation accentuated the tendencies, inherent in all institutional life, towards a constricted outlook and a loss of personality—tendencies which it is highly desirable to eradicate. If the infirmary is to realise in any measure the hopes some have for its future, its present isolation must be broken down and it must be brought out into the currents of medical thought and activities.

There can be no doubt, for example, that a superintendent who lives apart from the infirmary stands a better chance of preserving a fresh outlook and runs less risk of losing his personality than does his resident confrère. If he is allowed some outside practice, he is less likely to lose the individual in the patient—the great temptation of exclusive institutional work. Similarly with the nursing staff of the infirmary; the more they see and know of other hospitals, the broader will be their outlook and the better their own work. More potent than any other factor in the removal of this spirit of isolation from the infirmary will be a greater scope for thorough and conclusive work with a growing outside recognition of its merit.

Infirmary and Workhouse.

No discussion of the future of the infirmary would be complete without some mention of the influence upon it of the workhouse proper, where the two are adjacent. The system probably handicaps the infirmary, but against this has to be placed the economy of administration which the system allows, and the increased resources thereby available for its development. The workhouse (a name which should certainly be abolished) consists of two sections—one for the aged, which is really quite a creditable home for old people, the other for the healthy. In the latter, humanising influences seem to have come up against a dead-end, the personal factor seems to have defied solution, and the hard traditional atmosphere of the Poor-law remains. The proximity of this relic of the past is a danger to the future of the infirmary, and its amelioration is worthy of serious thought.

Some reference must also be made to a rather prevalent professional opinion which thinks that the infirmary has no contribution to make to medical progress. How wide of the truth is such an opinion is demonstrated by the success of Savill's "Clinical Medicine," written from what its author called "the great unexplored mine of clinical medicine." Only a profound ignorance could be blind to the facilities which a modern infirmary offers for wide post-graduate study. Perhaps also as a stage of end-results not merely of individuals, but of a profession and its science as a whole, the infirmary is worthy of a passing note. These end-results are secluded, and therefore forgotten, but they represent in no small measure the toll which preventable disease still takes of the community.

In conclusion, I would suggest that the future of an infirmary, where the progressive changes of recent years are operative, lies between remaining a semi-penal social necessity or developing into a genuine social asset, and that for such an infirmary, with certain of its existing handicaps removed, with its activities rendered more homogeneous, with a more definite outlook and status, perhaps with a change of name, the more optimistic alternative is certainly logical and probably feasible.

GUMMATOUS ADENITIS IN CONGENITAL SYPHILIS.

WITH NOTES OF A CASE.

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ONE of the least common of the tissues to be affected by syphilis in its later manifestations is the lymph-adenoid tissue of the body. Gummatous lesions of the lymph glands or of the spleen are extremely rare,

Gummatous ulceration and adenitis of the neck.

and Fournier,[1] in a review of over 2000 cases of late syphilitic lesions, does not mention the condition.

During the period of infection and while that infection is being overcome, by time and medication, the subject acquires an increasing sensitivity to the invading organism, and, we believe, gummata constitute the reaction of such a hypersensitive subject to residual spirochætes. That being the case it is not to be expected that the spirochæte, a fragile organism, should linger in tissues of high phagocytic power as the lymphatic tissues. Further, the anatomical structure of the lymphatic gland does not lend itself to the sequelæ of endarteritis and thrombosis which are essential features of gummatous lesions elsewhere, a fact which may in part account for the atypical histological appearances of gummatous lesions in the glands when they occur.

Probably the earliest reference to gummatous adenitis was published by Potier [2] in 1842 under the title of Affection Cancereuse des Ganglions Inguinaux. The case was that of a woman, aged 68, who had contracted syphilis four years previously and who subsequently developed an indolent swelling of glands of groin. The clinical description of the case suggests that it was one of gumma. Wile,[3] in 1912, recorded a case of gummatous adenitis, confirmed by demonstration of spirochætes from the lesion. In reviewing the literature he estimated that there were under 100 cases on record. Barth and Gomboult [4] reported one case of gummatous cervical glands associated with gumma of the thyroid; the diagnosis was confirmed by biopsy. Coues [5] reported four cases in 1915 and a further case in 1922; three of these were congenital syphilitics. Hughes [10] reported a case in 1925 almost identical with our own in every particular. Recently in a paper on cases of unrecognised congenital syphilis, Goldhurst [6] reported seven cases of glands of neck, some of which were broken down, with positive Wassermann reactions. The rapid response to antisyphilitic treatment confirmed the suspicion that they were gummatous in nature.

The association, therefore, of gummatous adenitis and congenital syphilis is well established, but it is sufficiently uncommon to merit the report of the following case:—

A girl, aged 11, was seen in the Light Department of the London Hospital in March, 1927, with gross cervical adenitis. In September, 1925, the child was alleged to have had tuberculous glands of neck while under treatment for phlyctenular ulceration of both corneæ. From July, 1926, to January, 1927, she received tuberculin injections at intervals of about ten days. Under this treatment the eye condition cleared, but the glands gradually increased in size. She was then admitted to a surgical ward and a gland excised for section, the pathological report being: "Caseous and granulomatous areas in cervical lymph gland; possibly syphilitic or tuberculous or Hodgkin's granuloma. No tubercle bacilli seen."

In March the child presented massive bilateral cervical adenitis with a gummatous mass about one and a half inches in diameter on the right side of the neck posteriorly. This mass and ulcer had the characteristics of a tertiary syphilitic lesion, as seen in the accompanying illustration. The blood Wassermann reactions of the mother and of the child were both positive, that of the father being negative.

There were no other stigmata of congenital syphilis except well-marked Hutchinson's incisor teeth; there was no deafness and the eyes, both as regards corneæ and fundi, were clear. There was, however, a marked wasting of thenar and hypothenar eminences of both hands with a tendency to claw-hand, a condition which had been present as long as the mother could remember, and was described as double-jointedness. Cerebro-spinal fluid obtained by lumbar puncture showed a negative Wassermann reaction, an absence of cells, and no excess of protein. The lesion here is probably the result of an old syphilitic meningovascular lesion in the region of the anterior spinal roots of the first thoracic nerves.

Treatment started on March 10th with mercurial inunctions was continued on March 17th by intravenous injections of novarsenobillon, 0·45 g. repeated at weekly intervals. Unfortunately, after the fourth injection the child developed chicken-pox, but at this time the glands were subsiding and the gummatous ulcer was healing.

When seen recently the patient was convalescing from the specific fever. The glands were about half their original size, and the ulcer, which had almost healed, contained a small slough. Treatment will be resumed as soon as the child is allowed to attend hospital.

This case was, in our opinion, one of gummatous cervical adenitis associated with congenital syphilis. Whether or not there was also tuberculous infection of the glands affected it is difficult to state. Cornil,[7] Lowenbach,[8] and Fasal [9] all emphasise the fact that the histopathology of the lesions in gummatous lymphadenitis is not typical of syphilis. In our own case biopsy gave similar evidence—namely, that of an atypical granulomatous inflammation.

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AN X RAY PIONEER.—As President of St. Thomas's Hospital the Duke of Connaught has presented the Carnegie Hero Medal to Mr. Chisholm Williams in recognition of his services to radiology. Mr. Williams was so seriously affected by the nature of his employment that he is now no longer able to follow it. During the war he did good work for the ex-Service men in the Bristol area of the Ministry of Pensions.

Clinical and Laboratory Notes.

TWO CASES OF FOREIGN BODY REMOVED AFTER TEN YEARS.

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THE foreign bodies removed were (1) a bullet in the lung and (2) a coin in the nose.

Bullet in the Lung.

History and Physical Signs.—A Kurdish man, aged 30, presented himself at the Altounyan Hospital suffering from profuse intermittent hæmoptysis of two months' duration. He stated that he had been wounded at Gallipoli during the war in the right arm and chest. Apart from a brisk initial hæmoptysis he had suffered no great inconvenience, though he had been invalided out of the army shortly afterwards. Two months before admission, while doing some heavy manual work, he had had a very copious hæmorrhage. Since then he had lost much blood.

Although the patient himself was convinced that hæmorrhage came from the right lung, and was caused by the bullet, a careful physical examination gave no clue. A radiogram showed a bullet in the right base, surrounded by an ill-defined opaque area, but the right apex did not appear quite clear. It was necessary, therefore, to try to exclude tuberculosis. The sputum was examined on five different occasions with a negative result.

It was proposed to induce an artificial pneumothorax on the right side, and to attempt extraction of the bullet through a Chevalier Jackson bronchoscope. It was felt that an artificial pneumothorax would reveal any existing pleural adhesions which was a point of considerable importance, in view of the possibility of an external operation; whilst bronchoscopy would at any rate definitely show from which side the blood was coming.

Artificial Pneumothorax.—Accordingly Dr. A. Poche (in charge of the artificial pneumothorax clinic) between Feb. 8th and 15th, 1926, injected, at two-day intervals, 300, 400, 600, and 550 c.cm. of air, the final pressures reading $-12+1$, $-7+3$. On Feb. 16th a radiogram showed considerable collapse of the lung, and the absence of adhesions in the region of the bullet. The hæmoptysis continued unabated. The blood count showed red cells, 3,680,000; white cells, 7500; hæmoglobin, 37 per cent.

First Operation.—On Feb. 20th the patient was prepared for bronchoscopy by Chevalier Jackson's method. After the third application of cocaine to the pharynx there was a very profuse hæmorrhage; over a pint of froth and clot was expectorated. It was decided to proceed at once by the external route. Under novocaine anæsthesia the seventh rib was resected for a distance of 15 cm. forwards from the anterior axillary line. On incising the air-distended pleura, and opening it widely with retractors, there was no alteration in the patient's quiet breathing. The collapsed lung, lying against the mediastinum, was seized with a Duval forceps and drawn into the wound. It was impossible to palpate the bullet. The presenting lung was then sutured into the wound and packed with gauze for adhesions to form.

Second Operation.—On Feb. 25th, after radioscopic localisation, needles were passed through the lung tissue but failed to touch the bullet. It was decided to remove the bullet under the X ray screen. Without anæsthesia, either general or local, the presenting lung was freely incised and the bullet removed with a long stone forceps. This was a very difficult and somewhat desperate procedure. The patient was coughing up blood very freely and the respiratory movements were much exaggerated; during the manipulations the newly formed adhesions were broken down and the reopening of the pleura produced a very embarrassing dyspnœa and mediastinal flutter. Eventually the lung was seized, drawn out, and sutured once more to the wound. Normal respiration was immediately restored, and from this time on no further hæmorrhage occurred.

During the operation it was ascertained that the bullet moved freely in a sac of lung tissue. Hæmorrhage was apparently caused by the bullet repeatedly injuring blood-vessels in its walls. It is difficult to see why the artificial pneumothorax proved so powerless to influence the loss of blood.

Twelve hours after operation the patient's condition was one of extreme distress; the pulse-rate was 160, the respirations 56, and the temperature 97·2° F. On removing the dressings it was found that a progressive pneumothorax was being produced through a pin-hole opening in the suture line. This highly dangerous condition was finally controlled by a gauze pad soaked in paraffin, held in place and made air-tight by suturing the skin carefully over it. By the next morning the pulse-rate was 120, the respirations 40, and the temperature 102° F.; the patient was safe. On Feb. 28th a large collection of septic fluid was evacuated from the pleura. The cavity was packed with gauze and air was excluded as much as possible.

Third Operation (March 4th).—There was now a large septic cavity between the lung and the diaphragm. The free movement of the diaphragm, which was plainly visible, obviously rendered the eventual healing of the wound problematic. Accordingly a right phrenicotomy was performed under novocaine anæsthesia, and the cavity was subsequently treated by continuous permanganate irrigation.

On March 23rd the patient left hospital, at his own request, with a large granulating wound. The diaphragm, practically immobile, could still be distinguished. The radiogram taken at this time shows large air spaces and collapsed lung. The patient reported six months later in good health. There had been no further hæmorrhage; there was a small fistula at the site of the wound. An X ray examination was refused—perhaps not unnaturally.

The following comments may be made: (1) In the light of after events it would obviously have been preferable to have boldly incised the lung at the first operation and removed the bullet. This was not done in the hope of avoiding the danger of infecting the pleura. (2) The ineffectual localisation of the bullet was due to its mobility in the sac. (3) Phrenicotomy should have been performed earlier, possibly at the first operation.

Coin in the Nose.

A man, aged 20, complained of right-sided headache and running from the nose of about one year's duration. The Wassermann reaction was negative. Examination of the nose revealed a mucous discharge from the right side, and on transillumination the right antrum was found to be opaque. Puncture of the antrum gave clear washings. After three weeks' observation a radiogram showed an opaque body in the inferior meatus of the right nares. A second careful examination with the nasal speculum failed to reveal a foreign body. Finally, after localisation, a nasal forceps was introduced under the right inferior turbinate and slowly advanced into the mucous membrane; a small silver one-piastre coin, measuring 1·5 cm. in diameter, was extracted. There was a brisk hæmorrhage. When confronted with the coin, the patient was able to recall that, when a small boy, he had at one time been in the habit of entertaining his friends by producing coins from his mouth, which he had previously introduced through his nose. He had no recollection of any coin sticking.

The radiogram shows considerable thickening of the nasal wall of the right antrum and broadening of the right inferior meatus. As so often happens, there was little in the history to suggest a specific search for a foreign body. The headache still continues, though the nasal discharge has ceased. The serum reaction of the blood for tubercle (Besredka's antigen) is strongly positive.

A NOTE ON TOTAL AND DIFFERENTIAL CELL COUNTS IN CEREBRO-SPINAL FLUID.

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PATHOLOGISTS are faced with two difficulties in counting cells in cerebro-spinal fluid: (1) It is sometimes very hard to differentiate between lymphocytes and red blood corpuscles (even the most expert have been known to make mistakes); and (2) stained films have a lamentable tendency to wash off the slide. The following method obviates both these difficulties, and has the additional advantages of being much more accurate and taking much less time.

A capillary pipette is drawn out and a grease pencil mark is made about an inch from the end. Into this are sucked with a rubber teat a volume of cerebro-spinal fluid, an air-lock, and a volume of 1 in 300 brilliant cresyl blue solution in normal saline. The contents are well-mixed by blowing out on to a slide, and a drop is put up on a counting chamber. The leucocytes will be found to be beautifully stained, while the red corpuscles are unaltered.

The total count is thus very easy, and at the same time a differential count can be done, because lympho-

cytes, polymorphs, ependymal cells, and even plasma cells can easily be recognised under the sixth inch objective. The count is more accurate than that done by the stained film method, because there is no tendency for the cells to be selectively dragged to one end of the film. The method has been in use for two years in this hospital, and has proved perfectly reliable.

Medical Societies.

MATERNITY AND INFANT WELFARE.

NATIONAL CONFERENCE IN LONDON, JULY 5TH–8TH.

THIS conference was, as we noted last week, of the usual wide scope and attended by delegates from all parts of the country. In his opening address as President of the conference Mr. NEVILLE CHAMBERLAIN dwelt on the triple partnership between the Ministry of Health, the statutory health authorities, and the voluntary health associations in welfare work. During the three crowded days which followed two of the most interesting discussions were on wet nursing and the provision of sick nursing in the home for children under school age.

Wet Nursing.

Dr. CATHERINE CHISHOLM (Manchester) described the system in operation at the Manchester Babies' Hospital since 1922. At first there were two mothers with their babies in residence. Now owing to successful results there are three. The mothers receive 10*s.* a week and all found. The good condition of their own baby encourages them. They are not allowed to leave the grounds except for a special reason. During five and a quarter years 24 have been in residence. Everything is done to secure healthy foster-mothers by medical and dental examinations (including the Wassermann test). The *real* baby is not entirely breast-fed, but has first call on its mother's milk. The foster-baby is not suckled, the milk being either expressed by hand or drawn off by a hand-pump or Abt's electric pump. The largest amount of milk given in the day has been 105 oz. Promiscuous suckling is revolting to some mothers, and the milk may "go" in consequence. Also the foster-child, if suckled, might infect the foster-mother. Dr. Chisholm claimed that the system has been of incalculable value to premature infants, and instanced a baby of 1 lb. 5 oz. weight on admission who did well. Sometimes the breast milk is diluted or peptonised.

Dr. RONALD CARTER (London) had made use of wet nursing 30 or 40 times in 20 years at his welfare centres. He took great care to select healthy mothers, rejected any who had had miscarriages or stillbirths, &c., but did not use the Wassermann test. He was also not impressed with the effect of oral sepsis, if it did not affect the general health. He had taught the mothers how to express the milk at home from one breast while their baby was suckling the other and to collect it and bring it up to the centre under clean conditions. In the selection of foster-mothers the health visitor's knowledge of the home circumstances was a great asset. The difficulty of organisation and transport was an obstacle to the spread of the system. Occasionally he had got a woman to actually suckle the baby of a neighbour or relative. During the last year he had obtained breast milk from the maternity department for cases of marasmus in the children's wards of St. Mary Abbot's Hospital and also from the borough council maternity department for other marasmic babies, and he believed a considerable supply could be obtained from similar institutions. He thought there should be centres in every area for the supply of breast milk, but was "not altogether in favour of the woman being paid for her milk."

Dr. HAROLD WALLER (London) referred to the unsavoury history of wet nursing in past centuries. As a voluntary act the supplying of milk for an alien baby was highly meritorious, but the sale of the milk did not seem a pleasant idea. At St. Katharine's, Poplar, they used the excess milk only, the *real* baby being entirely breast-fed. Few mothers had the temperament for suckling alien babies, but many mothers had so much milk that it was difficult for their own baby to suckle and much easier when some of the excess milk had been expressed. He always had the excess breast milk boiled before giving it to another baby. He thought the Wassermann test should be insisted upon, that the foster-mother's teeth should be in a sound state, and that it was better to have the milk expressed at the centres.

Dr. BRAID BIRKS (Salford) said lying-in mothers often had too much milk, and Dr. S. G. MOORE raised the point of the difference between the fore milk and the after milk, and the need for seeing that the *real* baby got its fair share of cream.

Councillor MARGARET BEAVAN (Liverpool) claimed good results from a similar system at the Liverpool Babies' Hospital, where they paid the foster-mothers 20*s.* a week as compared with Manchester's 10*s.*

Dr. MARGARET EMSLIE described a scheme which was being inaugurated in London for the regular expression, collection, and transport of human milk. The existence of centres and health visitors in all areas had made such a scheme possible.

Mrs. MCGHIE (St. Helens) pointed out that the mothers did the suckling of alien babies among themselves and asked if they were going to try to regulate such voluntary schemes.

Another speaker suggested that one could hardly pay for mother's milk, but one might pay her for the time, trouble, and work involved. A woman Poor-law guardian of 30 years' standing feared that the baby suckled by an alien mother might acquire her mental qualities and habits. The trend of the discussion was distinctly favourable to the extension of the system with proper safeguards for securing healthy foster-mothers and the well-being of the foster-mother's own child.

Nursing of Young Children at Home.

Miss E. HALDANE, who took the chair for the "nursing in the homes" discussion, referred to the great need for this service and also to the great improvement in education of young mothers as compared with the past.

Miss J. R. WATTS (Q.V.J. Institute for Nurses) put the case for a unified system of home nursing and dealt with the financial difficulties, which had prevented the Institute from training enough nurses. Most of her work had been done in Scotland, in the crowded industrial areas in which there was now a great demand for nurses on the provident system, which they were unable to meet. The medical profession as a whole had not properly backed the establishment of district nursing and might have secured nursing as one of the benefits of the Insurance Act if they had insisted. Miss Watts spoke quite impartially and did not attempt to dictate whether the service should be provided by statutory authorities or a subsidised voluntary association.

Dr. J. E. SPENCE (M.O.H., Eccles) described the system in Eccles, designed to prevent overlapping. The districts there are compact, with no long distances to cover, and the duties of health visitor, school nurse, and of home nursing of the children are carried out by one woman. Instead of an area with 400 annual births, the Ministry's standard, each of these health nurses has an area with 180 births. This system has worked well for four years in Eccles.

Some of the points which emerged from the discussion were:—

1. At the present time health visitors with districts of "400 births" cannot supervise the toddlers, much less do sick nursing. To be called upon for sick nursing usually means neglect of the health visitor's proper important duties.

2. There should be one home nursing service, controlled in each area by one body. Before the ideal is obtained, the

subsidies to nursing associations should be increased and better coöperation with the preventive service might be secured if the M.O.H. or his deputy were a member of the management committee of the district nursing associations in his area.

3. The education of girls in sick nursing before marriage was put forward as an effective way of diminishing the need for home nursing. A miner's wife, the mother of nine children, described how owing to some training in first-aid she was able to nurse her ninth child herself, when it was badly burnt. She paid a woman to help with the household work in the meantime.

Dr. ETHEL CASSIE (Birmingham) said the aid of a home-help often enabled the mother to use the skilled nursing of the school clinic, when she could not otherwise have done so. Better housing would act both ways. It would lead to fewer cases of sickness needing nursing but it would permit many cases of respiratory disease, which have to be removed to hospital at present from an impossible environment, to be nursed at home.

Milk-borne Tuberculosis.

Dr. A. STANLEY GRIFFITHS (University of Cambridge Field Laboratories) in an evening lecture on the pasteurisation of milk in relation to surgical tuberculosis, said that there was no difficulty in distinguishing between the bovine and human strains. A tuberculous udder might give 100,000 tubercle bacilli to 1 c.cm. of milk. Milk might contain tubercle bacilli without the udder showing signs. The fæces were the second greatest infector of milk because most of the lung tubercle bacilli were swallowed. Even if tuberculous udders and emaciated and advanced cases were excluded from milk herds, the raw milk would not be safe. The doctrine that bovine tuberculosis was a useful immuniser against human tuberculosis was a very dangerous one. The bovine type might affect any organ and cause death by meningitis, general tuberculosis, and ulcerative pulmonary tuberculosis, although owing to the alimentary system being its usual portal of entry it was rarely the cause of pulmonary tuberculosis. It was a mistake to think that it was a mild form of the disease. An estimate founded on examination of material from the living and from post-mortems showed that 6·9 per cent. of the deaths from tuberculosis were from the bovine type. This meant that there were 3000 deaths in England and Wales during 1924 from tubercle-infected milk, and this figure was probably an underestimate because the post-mortems did not include those of children under 2—a very susceptible age.

The Tuberculosis Order had not, he said, as yet produced much effect. His examination of 19 cultures from fatal cases during 1926 and 1927 showed that eight were of the bovine type, and most of the large cities had a higher percentage of tuberculous milk in 1926 than in 1925. The percentages for Birmingham, Manchester, Leeds, and Edinburgh were 9·4, 10·3, 10·4, and 11·0 respectively. To make raw milk safe they must gradually get rid of reactors and build up tubercle-free herds. Dr. Griffiths gave some figures from Guernsey. From 1910–19, 2426 animals were tested with tuberculin and 191 reactors found. Recently 2882 had been tested and only two animals reacted.

Infant Mortality.

Dr. A. S. M. MACGREGOR (M.O.H., Glasgow) opened a discussion on respiratory diseases as a factor in infant mortality. He referred to the excessive infant mortality from both respiratory diseases and diarrhœa in the north and expressed the opinion that the cause for the difference between north and south was to be found rather in industrialism and poverty than in difference of climate. He gave statistics for Glasgow showing that the mortality from respiratory diseases was the chief single cause of the difference in the infant mortality-rates in the industrial and poor wards of the city as compared with the residential wards. He advocated a close research study of child life conditions in the areas around the various welfare centres. Rickets increased the mortality from these diseases. Glasgow was regarded as the home of rickets, but there had been a remarkable decrease in rickets during the last 20 years. Glasgow had for years adopted the policy of providing hospital accommodation for measles and whooping-cough which so frequently had respiratory complications.

Dr. CHODAK GREGORY dealt with the treatment of pneumonia. Out of 100 cases, 40 might be of the lobar type. Lobar pneumonia in childhood was not so serious and had a case fatality of about 12 per cent., whereas broncho-pneumonia had a case fatality of 50 per cent. Lobar pneumonia could be more easily treated at home but was more frequently sent to hospital than broncho-pneumonia. The fear of its being due to an infectious disease (e.g., measles) often delayed the admission of broncho-pneumonia. Early diagnosis was therefore important. Hospital construction was unsatisfactory. Large wards were difficult to heat and ventilate and gave no facilities for isolation. She recommended groups of small wards. Our climate was hardly suitable for actual open-air treatment but the bed should be at the open window.

Dr. K. SIMPSON (M.O.H., Barking) dealt with bottle-feeding, rickets, malnutrition, and tuberculosis as predisposing causes of broncho-pneumonia, and expressed his approval of the action of the M.A.B. in making hospital provision for broncho-pneumonia complicating measles and whooping-cough.

Other items of interest included a survey of the working of the Maternity and Child Welfare Act, 1918, by Dr. F. E. Fremantle, M.P., addresses on the practical teaching of mothercraft (Dr. Mabel Brodie), on the blessing of sunlight and the curse of smoke (Dr. Leonard Hill and Dr. C. W. Saleeby), and on the provision of observation wards and hospital beds for infants and children under school age (Dr. James A. Stephen, Aberdeen). The fourth day of the conference was given up to tours in practical illustration of subjects discussed.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

THIRTEENTH ANNUAL CONFERENCE.

(*Concluded from p. 69.*)

HOUSING: HOME CONDITIONS.

IN the absence through illness of Dr. H. R. KENWOOD (professor of hygiene in the University of London) his paper was read by Dr. A. M. HEWAT (senior medical officer, L.C.C.). Prof. Kenwood had no doubt that complete measures for the prevention of tuberculosis could now be formulated, but they would be held to be prohibitive as to cost, in spite of the heavy economic waste from a disease which after three or four years of sickness destroyed life at the rate of 7000 to 8000 per week in England and Wales. But more of the money already provided for special measures of direct attack should be spent upon preventive measures apart from the cure of the patient. They needed to adopt a wider outlook upon prevention by regarding all members of the infected family as definitely subject to a risk. When a notification was received and a family was found in which the disease had appeared, the really essential thing was to find out why that particular family unit had "fallen by the way," and then to do all that was possible to prevent any extension of the disease in that susceptible family. Certain points, he thought, should be borne prominently in mind. From the early days of the voluntary notification of pulmonary tuberculosis, and for many years subsequent to the compulsory notification of the disease, he visited every notified case in Stoke Newington, and he was always impressed with two facts—that notifications mostly came too late, and that it was often impossible to secure such satisfactory home and living conditions as would be likely to provide a really useful measure of protection against any extension of disease in the home, especially when

young children were present. There was always some adverse factor which could not be removed, and most commonly the major evils of bad air in the bedroom and bad nutrition were in association. In more recent years there had been some improvement in these respects, but even now much had to be left undone or done to a partial and therefore often futile extent. It was certain that without good notification they could not get good results from direct measures. Taking at random an annual report for 1926 of a large town, he found there were 275 deaths from pulmonary tuberculosis; of these 22 were dead when first notified, 145 were dead within 12 months, and 36 were never notified. In another town over 55 per cent. of the notified cases were dead within six months. Such unsatisfactory notification largely explained the ineffectiveness of direct measures against tuberculosis. In childhood both prevention and cure were of special importance, and it was there that both problems assumed the most simple and economical dimensions. The important preventive measure of boarding out children who were running a risk of infection in tuberculous homes had not been as generally adopted in this country as it should have been. There was no doubt in his mind that a large amount of excellent institutional work was almost wasted from the lack of efficient after-care work, and he also doubted whether this latter would be fairly generally provided until its essential importance, when performed as it should be, was more fully appreciated. He held the view very strongly that suitably trained whole-time officials were needed for this work, and that a detailed national scheme of after-care should be framed and enforced. Better sanitary and social conditions were increasing the people's resistance to the disease, and the risks from a massive dosage of infection were diminishing, but the advanced case in most poor-class homes remained a standing menace to the health of some of its occupants, and a limited amount of segregation, optional or compulsory, should be more generally demanded.

Discussion.

Sir WILLIAM YOUNGER (Member of the Royal Commission on Housing for Scotland, and chairman of Dumfries and Galloway Sanatorium) gave a number of instances of cases of tuberculosis which had occurred owing to badly built and dirty houses. The problem of bad homes must be solved if any progress was to be made. He urged the establishment of convalescent homes for children under the same authority as the sanatorium, where children with known bad homes could go after treatment in a sanatorium and remain until they were in a state of health to face their home conditions.

Sir WILLIAM THOMPSON (late Registrar-General for Ireland) stated that the death-rate from all forms of tuberculosis in the Irish Free State per 100,000 of the estimated population, as represented by the number of deaths registered, was in 1906, 253·1; in 1916, 210·9; in 1926, 146·8. The corresponding rates for pulmonary tuberculosis were respectively 193·8, 168·2, and 113·4. Some of the decrease, he felt sure, was due to better housing conditions, at any rate in the rural areas.

Dr. F. J. H. COUTTS (Ministry of Health) referred to the importance of propaganda work in educating the public, not only in the sense of instruction, but also in encouraging them in the study of health matters.

Dr. H. DE C. WOODCOCK (Leeds) urged that more serious attention should be given to the consideration of trades in regard to the treatment of tuberculosis.

On Friday, July 1st, Dr. E. L. COLLIS (Mansel Talbot Professor of Preventive Medicine, University of Wales) delivered an address on

HOUSING AND INDUSTRIAL CONDITIONS.

Statistically, he said, they were aware that the mortality from tuberculosis had been falling steadily and regularly for more than 50 years. In the 13 years that had elapsed since the National Association last discussed the prevention of tuberculosis from the viewpoint of the home and the factory two statistical periods were represented. The first was the war period, during which mortality from pulmonary tuberculosis rose, the rise being confined to the ages 15 to 30 years. In this country the rise was particularly investigated for women, and was shown to be in direct proportion to the extent to which they were called upon to perform munition work. The second was the post-war period, during which the trend of the pre-war fall was resumed, affecting chiefly the ages 15 to 30 years. This fall occurred while overcrowding, due to inadequate housing, was at its height, and apparently had been in no way affected for better or for worse by amelioration in the housing position. Unhygienic environment appeared, as far as tuberculosis was concerned, to be of far less importance than malnutrition.

The position seemed to be that there was a ubiquitous endemic infection. In infancy it carried off those who had inherited no resisting power; in early adult life it carried off those whose resisting power was lowered either by impaired digestive powers or by a dietary inadequate for their needs; in middle life it carried off those for whom the wear and tear of early adult life had been heavy. The two latter groups were particularly represented in occupational life. Heavy work on entering industry and low pay, entailing an inadequate dietary, predisposed to the disease in early adult life. Industrial life for most women terminated with marriage, while for men it continued throughout life. The pronounced difference, then, which existed between the mortality from tuberculosis of males in middle life and that of females might reasonably be ascribed to industrial conditions. To-day the stronghold of tuberculosis when estimated by the mortality from phthisis at age-periods per 1000 living was found among males of middle age in industrial districts; but mortality at this period of life might reasonably be held to represent the cumulative effect of industrial life as lived during the last 30 years. The effect of the shorter hours of work customary to-day would only become manifest as years passed by. When they reviewed the fall in phthisis mortality since 1860 it was found to have been most pronounced in infancy, at that period of life when infection was the only factor at work, and to have been least pronounced in middle age, when infection was greatly aided by wear and tear. The conclusion presented was that the amount of tuberculous infection had been diminishing; it might still be ubiquitous, but it was less intensive. The point where the enemy was weakest lay in the control of infection. The method for following up their advantage was clear. They must recognise that tuberculosis was infectious; they must recognise the tubercle carrier, just as they did the typhoid carrier; they must eliminate the infected from their factory industries and place them in industrial colonies; they must continually impress upon the public the infectious nature of tuberculosis. Finally, when, as the incidence of the disease continued to fall, sanatorium accommodation was sufficient for housing and treating all the remaining cases, strict segregation must be adopted. Not until they controlled the infection would the disease be finally eliminated.

Sir THOMAS OLIVER (professor of medicine, Durham University) said that overcrowding was one of the greatest causes of illness, and especially of tuberculosis.

Mr. Councillor C. W. ALLISON (Stockton-on-Tees), in the course of the discussion, said that employers needed educating as to what was their duty towards the workers. In a new industry started in his district stone was first drilled by a wet process, but when customers objected to the moisture a dry drilling process was substituted, as a consequence of which the workers were likely to suffer from phthisis. The Chairman said that he would take the earliest opportunity of bringing the matter to the notice of the Ministry of Mines.

At the conclusion of the discussions visits were arranged to various institutions and housing schemes, including Preston Hall, L.C.C. housing schemes at Hammersmith, Burrow Hill Colony, Frimley, and Welwyn and Letchworth Garden Cities.

Reviews and Notices of Books.

THE SCIENCE AND PRACTICE OF SURGERY.

By W. H. C. ROMANIS, M.A., M.B., M.Ch. Cantab., F.R.C.S. Eng., F.R.S. Edin., Senior Surgeon in Charge of Out-Patients and Teacher of Practical Surgery, St. Thomas's Hospital; Surgeon to the City of London Hospital for Diseases of the Chest; and PHILIP H. MITCHINER, M.D., M.S. Lond., F.R.C.S. Eng., Surgeon in Charge of Out-Patients, Teacher of Operative Surgery and Demonstrator of Anatomy, St. Thomas's Hospital. London: J. and A. Churchill. 1927. Vol. I., 795 pages. Vol. II., 956 pages. 14s. each volume.

THE writing of a text-book of surgery for undergraduate students at the present day is a laborious undertaking. It requires a nice judgment in the selection of material, in the rejection of much that occupies the minds of progressive surgeons but is of a debatable nature, and particularly in the method of presentation to the reader. Above all things, the undergraduate must be taught facts and the general principles upon which surgery is based. Pure hypothesis and speculation, unless they are intrinsically necessary for the understanding of treatment, should be left for later study. It is, therefore, with these considerations in mind that such a text-book as that before us should be approached.

Vol. I. begins with general considerations. It describes the materials and chemicals used in surgery, their use and preparation, sterilisation, the pre- and post-operative treatment of patients. Inflammation and repair occupy a very few pages and this section, together with that on bacteriology, might almost have been omitted without much loss to the book. The general infections, syphilis, tetanus, anthrax, and so on are succinctly described and give the student in a short space all that he need know of these diseases. Indeed, that part of the subject usually included under the term general surgery is all well done. Thus the section on tumours describes the ordinary new growths met with by the surgeon, the most common sites of their origin, and gives an account of appropriate treatment, the whole section being adequate and yet not long enough to confuse the undergraduate student. Chapters on bone and joint diseases present short but clear summaries of a branch of surgery which always presents many difficulties to the beginner. On page 311 there is a slip in the formula for the normal reaction of nerves to the galvanic stimulus. The recent requirements of examining boards as to knowledge of X ray methods are met by a chapter written by Mr. Geoffrey Fildes.

Vol. II. is a treatise on regional surgery. Here again difficulties have been successfully overcome, particularly in the chapters on the surgery of the cranial contents. The management of head injuries conforms to modern practice, but there is no mention of that very useful instrument, the spinal manometer. Naturally the experienced reader turns soon to the section on exophthalmic goitre, a subject upon which one of the authors has done much work. Here we find the statements that spontaneous cure very rarely occurs, that medical treatment should be tried for some months, that failure to improve is very common, whilst operation is usually followed by excellent results. According to the authors rapidity of heart-rate and cardiac dilatation are not contra-indications to operation, but evidence that the heart is failing is a contra-indication. But what else is cardiac dilatation but evidence of overstrain of the heart and failure to maintain the circulation with intact walls? The authors do not practise ligations of thyroid vessels and avoid operation during the second six months of the disease. They do not mention the use of basal metabolic estimations in judging the effect of treatment or in deciding whether an operation is indicated. The abdominal section of the book is written on the usual lines and is good. Here and there individual opinion is very emphatically expressed, as, for example, in the treatment of appendicitis, but due acknowledgment of other views has been given. The remainder of this volume maintains the high standard set up in the first.

It would, of course, be easy for the specialist in any branch to criticise on the score of omission almost any section of the work. For instance, the stomatologist might expect, with some reason, a reference to the latest work which has been done on the treatment of carcinoma of the tongue with radium. But the authors have evidently considered this beyond the range of the book, and any but a very exacting critic will bow to their decision. If we regard the book as a whole it becomes obvious that the authors have got their values right. They present a well-balanced account of the science and art of surgery as practised at the present day. One very good feature is the inclusion of the specialties, including gynæcology so far as it concerns the general surgeon, and diseases of the eye, nose and throat, so that a student preparing for a pass examination in surgery need not buy a number of books dealing with its different branches. If he absorbs the information contained within the covers of these volumes he will certainly satisfy the examiners, and will, moreover, have acquired a very good basis of knowledge should he have ambitions for higher degrees in surgery. There was room for this text-book, and the authors are to be congratulated upon the production of a very useful and practical manual for the undergraduate student. The price is very moderate.

ANATOMY.

Lehrbuch der normalen Anatomie des Menschen. By Prof. Dr. F. SIEGLBAUER, University of Innsbruck. Berlin and Vienna: Urban and Schwarzenberg. 1926. Pp. 908. M.21.

HERE is an excellent book on formal anatomy, and this in spite of the absence of any figures or diagrams. Prof. Sieglbauer has foregone illustrations of set purpose, and even if we do not agree with all the reasons he gives for his decision, we must admit that he has produced a work which deserves cordial praise. He has well covered the ground necessary for the student, his descriptions are reliable, and his style of presenting the subject is interesting, simple, and concise. The author is evidently a Greek scholar and enthusiast, and brings the humanities to bear on his writings. Altogether this is a book of unusual merit.

Toldt's Anatomischer Atlas. Thirteenth edition. By Prof. Dr. FERDINAND HOCHSTETTER. In three vols. Berlin and Wien: Urban and Schwarzenberg. 1927. Pp. 984. M.36.60 and M.42.60.
Toldt's Atlas of Human Anatomy. Revised edition. Adapted to English and American and International Terminology. In two volumes. By EDEN PAUL, M.D., M.R.C.S., L.R.C.P. New York: The Macmillan Company. 1926. Pp. 985. 42s.

Toldt's Atlas is a classic in the anatomist's library, and it was with peculiar pleasure that we have received these two separate issues of the famous work. Prof. Hochstetter's edition, although it preserves practically all the old familiar figures, presents some new features in the shape of many excellent drawings, executed in the spirit of the original, while the addition of X ray photographs, associated with the areas under illustration, makes a valuable inclusion. Some new embryological figures are given; it is surprising to find that no advantage has been taken of the recent work on development of veins. We welcome this new edition of an old favourite.

The revised edition of Dr. Eden Paul's translation of the Atlas will also be welcomed by English-speaking students, because of the excellent notes and references introduced by the translator. It is refreshing to read these addenda. We have been rather drifting away from the old body of descriptive anatomy bequeathed to us by our fathers, or perhaps it might be said that, while working at its internal scope and

bearing, we have tended to take only a secondary interest in its outer boundaries and appearance, and notes such as these are good correctives to such want of attention. The two volumes ought to be in every anatomical library.

STOMACH DISORDERS.

A Handbook of Diseases of the Stomach. By STANLEY WYARD, M.D., M.R.C.P., Physician to the Bolingbroke Hospital. London: Humphrey Milford, Oxford University Press. 1927. Pp. 387. 16*s*.

THE main facts concerning disorders of the stomach are so well stated in this book that it should form a useful volume in any practitioner's library. Perusal of the sections dealing with hæmatemesis, gastric cancer, or the treatment of peptic ulcer is sufficient to disclose the wise judgment of the author, and the fact that he writes after deep reflection and much experience. We have, for instance, seldom read a more closely-reasoned account of the factors for and against the surgical treatment of gastric ulcer. The book may be criticised on the ground that the arrangement of the matter in the various chapters does not show strict logical sequence. Why, for instance, dyspepsia, hæmatemesis, and a heterogeneous assortment of symptoms called "conditions of unknown pathology" should form the three parts of Chapter VI. it is a little difficult to understand. And again, in a book which for obvious reasons omits description of cholecystitis and pancreatitis, the inclusion of sections on psittacosis and infantile diarrhœa is rather baffling. It would, however, be wrong to allow these defects of arrangement to disguise the excellence of a little book which is far better than many pretentious volumes dealing with the same subject.

The author at times allows his individual opinions some prominence, as when he defends imported meat on page 53, and condemns both liquid paraffin and bismuth in Chapter V. There is a seeming contradiction concerning pain in gastroptosis on page 172, and on page 347 an unfortunate transposition of the numbers referring to charts renders the text unintelligible. The numerous X ray illustrations, on the other hand, are beautifully clear and serve their purpose admirably.

TUBERCULOSIS OF THE MIDDLE EAR.

Das Problem der Mittelohrtuberkulose. By Dr. A. I. CEMACH. Berlin and Vienna: Urban and Schwarzenberg. 1926. Pp. 224. M.9.

Dr. Cemach has thoroughly examined a large number of cases of tuberculous disease of the ear with interesting results. He divides his cases into three groups. He examined the consumptive patients of an entire army corps, numbering 2342 (Group I.); among these he found 258 cases of aural suppuration, of which 63 were acute and 195 chronic; of the acute cases 5, and of the chronic cases 51, proved to be tuberculous. Classified according to the stage of the pulmonary disease, the results were: first stage, 716 cases, 7 with aural tuberculosis, or 1 per cent.; second stage, 1152 cases, 25 aural, or 2·1 per cent.; third stage, 474 cases, 24 aural, or 5 per cent. Among 1320 soldiers with apparently healthy lungs (Group II.) he found 59 cases of middle-ear suppuration, of which 3 proved to be tuberculous. Group III. consisted of 300 cases of aural suppuration among adults; of 81 acute cases, none were tuberculous, and of the remaining 219 chronic cases, 14, or 4·7 per cent. of the total, had tuberculosis of the ear. These details show the considerable number of cases dealt with; it is to be observed that they are all adults. Dr. Cemach deals exhaustively with the question of diagnosis; he considers a negative Pirquet reaction very valuable in the exclusion of tuberculosis in ear disease, but lays most stress on a positive focal reaction from subcutaneous injection of tuberculin, and claims that the method is only dangerous in acute and progressive cases. In the search for the tubercle bacillus he employs Petrov's method of cultivation on an egg-medium, using gentian violet to inhibit the growth of associated bacteria. As to treatment, the indications for operation are the same as in non-tuberculous suppuration; the author insists strongly on the value of tuberculin in skilful hands; he holds that this method of treatment should not be undertaken by the otologist, but by a specialist in tuberculosis working in conjunction with him. The author evidently holds strong opinions, which will not meet with universal acceptance, but he supports his arguments well; the book, although too verbose, provides plenty of material to interest other workers on tuberculosis as well as otologists.

ANIMAL NUTRITION AND VETERINARY DIETETICS.

By R. G. LINTON, M.R.C.V.S., Professor of Hygiene, Royal (Dick) Veterinary College, Edinburgh. Edinburgh: W. Green and Son. 1927. Pp. 399. 21*s*.

THIS book is a welcome addition to veterinary literature. It will help the students as well as the practitioner, since it brings all the essential facts connected with nutrition before them in one handy volume. Without a thorough knowledge of how animals are fed in health the veterinary surgeon cannot know how to feed them when they are ailing. The practical agriculturist also will find much to interest him. Prof. Linton has divided his subject-matter into six sections, of which the first deals with the composition and function of foods, the second with the foods, the third with their nutritive value, and the fourth with their preparation and storage. The last two sections are devoted to the feeding of cattle, horses, sheep, pigs, dogs, and poultry, and to the consideration of certain foods which are harmful. An appendix gives the weight of foods by measure, and the composition and nutritive value of foods. Here and there in the book one finds a little more information than the title would lead one to expect—for example, in the fifth section recommendations are given regarding the hygienic treatment of the new-born calf.

The book is almost entirely a plain statement of fact. Little controversial matter is included, and the reader will consequently find little to criticise, except perhaps it be the statement on page 43, that "evidence is constantly increasing which tends to show that many diseases of farm animals owe their origin to malnutrition." If the author had said "some" diseases, more of his readers would have been inclined to agree with him. Recent years have shown a tendency for some investigators to accept wholeheartedly the view that by feeding animals properly diseases will to a large extent disappear, just as another school holds to the view that diseases, even the dread foot-and-mouth disease, can be *bred* out of our flocks. Such views are worthy of careful and polite consideration, but their wholehearted acceptance is likely to lead to disappointment.

COLLOIDAL REACTIONS OF THE CEREBRO-SPINAL FLUID.

Les Nouvelles Méthodes sur les Réactions Colloidales du Liquide Céphalo-rachidien. By EUGENE DE THURZO. Paris: Maloine. 1927. Pp. 182.

THIS book contains full accounts of the well-known colloidal reactions of the cerebro-spinal fluid, such as the Lange colloidal gold reaction and the colloidal benzoin reaction. In addition to these standard methods a series of extraordinary reactions which are little known in this country is described and their diagnostic value discussed. These seem to us nebulous both with regard to their method of application and to the deductions made from the results obtained. A short bibliography is included after each chapter. The information contained in the volume is little more than that given in the ordinary text-books and manuals of practical pathological and laboratory diagnostic methods.

THE LANCET.

LONDON, SATURDAY, JULY 16, 1927.

CANCER OF THE LUNG.

DURING the last four or five years several pathologists in Europe and America have drawn attention to the fact that cancer of the lung has become substantially more frequent in their experience than it used to be. In our present issue Dr. J. B. DUGUID discusses the relevant data from the Manchester Royal Infirmary, and there is certainly an unpublished impression among the pathologists of several other British hospitals that they have observed a similar increase. When an attempt is made to translate this impression into the neat statistics which are so desirable a good many difficulties arise, and this perhaps explains why more has not been published on what seems to be an extremely interesting and important subject for cancer research to engage with.

There is, in the first place, the difficulty of clinical diagnosis. Intrathoracic tumours give rise to a variety of symptoms, which do not necessarily lead direct to a correct diagnosis. In large hospitals with skilled clinicians and adequate technical equipment the error is now probably small; in less specialised practice it is probably very considerable. In any case, death certificates could not be regarded as good enough for the details of the inquiry. In the second place, if the scope of the inquiry is limited to the data obtained at autopsies (and in fact it is from this source that the described increase has been identified), the nature of the tumour found is not altogether certain. Definite carcinomata of bronchi, either spheroidal or squamous-celled, constitute only a proportion of the cases under discussion. Commoner than either of these is the tumour known in the past as an "oat-celled sarcoma" and believed to originate in the mediastinal glands. Recent scrutiny, well described by Mr. W. G. BARNARD,[1] seems to show fairly conclusively that these growths are really carcinomata too. If that is so, most (though not all) of the "sarcoma of mediastinum" of the older records should be grouped as carcinoma of bronchus. And, thirdly, having verified the diagnosis by autopsy and agreed upon the nature of the tumour after microscopical examination, we are faced with the difficulty which is always present in any attempts to ascertain the real prevalence of a disease in time and place from its occurrence in the selected class which constitutes our hospital population. It is, we believe, very nearly impossible to obtain a precise comparison between any two hospitals, or between any two periods in the same hospital. The criteria of admission differ very widely and with the progress of medicine and surgery are constantly changing; an Addison or a Horsley on the staff may upset the statistics of an institution as seriously as do the available beds in proportion to the population, the presence of a medical school, or the standard of the local Poor-law infirmary. Recognising these difficulties, one has to express the figures as best one may: the percentage of cancers of the lung (or intrathoracic tumours) on the total admissions to the hospital, on the total autopsies made, on the total autopsies in which malignant disease was found. Dr. DUGUID uses the second method; several observers have used the third which is perhaps the least bad, but none is perfect.

Giving all the weight they deserve to these criticisms of any numerical measurement which may be made, there is, we believe, ample evidence that the statement "cancer of the lung is considerably commoner than it used to be" is true. There seems also to be no doubt that it is much more frequent in men than in women—i.e., that it is connected either with a male habit or with occupational rather than home life. Further than this it seems hardly possible to go at present; we hope that some of the cancer research organisations will take up the problem intensively, for it is evident that most important evidence can be obtained if the disease can be definitely traced to some mode of life. It should be possible to do this and various suggestive relationships have been put forward already. Dr. DUGUID finds that a remarkably large proportion of his cases were occupied in one way and another with road traffic; road traffic as a whole has, of course, enormously increased but the emanations from motors, including particles of oil, and the use of tar on the roads, are obvious possibilities. Experimentally, tar and other products of the combustion of coal have a unique carcinogenic efficacy, and Dr. A. N. KINGSBURY has recently attributed [2] a scrotal epithelioma in a Tamil to the irritation of oil sprayed in antimalarial operations. Tobacco-smoking is much more prevalent than it was, and it is one of the signs of the times that the class from which general hospital patients are mostly drawn have changed pipes for cigarettes. Dr. E. FROMMEL, in an interesting paper [3] on their experience in Geneva, attributes the greatest importance to a dusty occupation, and his data seem to show that vegetable dusts (as in woodmaking) are as important as mineral particles. It is well known that various inflammations will cause metaplasia of the bronchial mucosa to squamous epithelium. The suggestion has been made that the increase in pulmonary cancer is due to the 1918–19 epidemic of influenza. If that is so, there should later on be a corresponding decline in frequency. But while we wait for time to answer that particular question it is most desirable that a concerted attack should be made on the whole problem—the more so because it seems likely that it is in large part soluble. Dr. DUGUID'S tentative findings might justify a grant from the Road Fund for the purpose.

[1] Journal of Pathology and Bacteriology, 1926, xxix., 241.

[2] Ibid., 1927, xxx., 504.

[3] Revue de Médecine, 1927, p. 31.

TWO CENTENARIES.

REFERENCES have been made in many places during the last year to the burden that is accumulating for our descendants through the modern habit of holding centenary celebrations, but no one will deny the perfect propriety shown by the authorities of Guy's Hospital when deciding to commemorate, in a full and dignified programme, the scientific work of that great son of their school, RICHARD BRIGHT. It was not the centenary of BRIGHT'S birth which was acclaimed last week, but that of the publication of the first volume of his "Medical Cases," the volume which contained the message which has proved of such signal importance to the world. The proceedings at Guy's Hospital formed an international testimony to BRIGHT'S fame. From the United States of America, from France and Germany, representative men of science came to add the voices

of their countries to the chorus of commendation, and from the many-sided eulogies there emerged a masterly picture of a great clinician. BRIGHT was simple in his objectives, undertook his investigations without prejudgment, had indefatigable industry, and, being neither precipitate nor vain, escaped the set-backs which attend the over-confident. He was a persistent critic of his own observations, and, though often he must have found that his accuracy had not been at fault, he continued to the end to apply to his latest collections of facts the same rigid testing which had led to his original discovery.

While centenary honours were being paid at Guy's Hospital and at the Royal College of Physicians of London to RICHARD BRIGHT'S genius, an address commemorating the services of LISTER was delivered at the Royal College of Surgeons of England by Prof. A. F. VON EISELSBERG, of Vienna. LISTER was only 6 years old when BRIGHT told the first consecutive story of the condition known as Bright's disease, and the reflection that must follow is, as Prof. THAYER pointed out in his oration at Guy's Hospital, that BRIGHT was remarkably early in employing scientific collaboration to the solution of clinical problems. His forerunners in medicine were isolated investigators whose success sprang from personal experience and personal experiment; the idea of team-work, which nowadays dictates the procedure of nearly all official and unofficial inquiries into disease, was hardly born, and the part that BRIGHT played in its introduction in itself stamps him as a pioneer of medical research. To-day the association of numerous talents furnishes the reason for the clinics of our teaching hospitals and is recognised as advantageous in every kind of investigation. But such an association is worthless for the study of disease unless it rests upon a basis of common belief; there must be an accepted conception of pathological processes. And LISTER'S pre-eminent gift to surgery lay in the provision of the unifying influence that his discoveries in relation to infection eventually exerted. They offered a new basis for research as well as for practice, and they made it possible for surgeons, united on the fundamental principles of infection, to direct their joint attention towards pathological problems beyond. The terms of reference of a research committee can be settled and the rôles of the members allotted in a way that 80 years ago was impossible; but RICHARD BRIGHT went very far in this procedure, and the greatest honour is due to him for his foresight and the modesty which underlay it.

Prof. EISELSBERG devoted part of his address to showing the extent to which this unity, promoted by LISTER, had enabled science to advance. The revolutions in technique had made possible BILLROTH'S successes in gastric surgery, HORSLEY'S work on cerebral localisation, and the study of endocrine disorders. Perhaps, he hinted, the ease of operative measures to-day sometimes tempted surgeons to excessive interference, against which it was necessary to guard at all times, and in this warning he called attention to some of the greatest difficulties which attend the work of the operating surgeon. Despite the possession of a fundamental basis of learning, and despite the high level of general teaching, there must be situations in which a given procedure will be a matter of routine for the man of great opportunities, or a legitimate invitation to the man of genius, while remaining hazardous for the less fortunately endowed. Some of Prof. EISELSBERG'S wise maxims on this and other aspects of the practice of surgery will be found in the report of his address published in this issue. Read together with Sir BERKELEY MOYNIHAN'S glowing tribute to the speaker they form an indication of Prof. EISELSBERG'S worthiness to receive the second award of the medal founded to perpetuate LISTER'S memory.

SCARLET FEVER.

Scarlet fever, though no longer the fatal and terrifying disease it once was in England, is still very common among us. During each year of the last decade some 80,000 cases have been notified on the average, and although the proportion of deaths has reached little more than 1 in 100, the interference with school education and with the daily life of the homes infected has been enormous, while a vast amount of public money has been expended no hospital isolation and treatment. The situation thus briefly indicated has induced the Ministry of Health to make an inquiry into the nature and efficacy of the measures at present carried out; materials furnished by the public health service and by fever hospital superintendents have been collected and analysed by Dr. A. C. PARSONS, and his report, which has just been issued,[1] contains the conclusions of a committee of medical officers of the Ministry on the main objects of the inquiry.

In his preface to the report Sir GEORGE NEWMAN recalls the three groups of problems presented by an infectious disease of wide prevalence. First, there is the cause, which in the case of scarlet fever is not yet fully ascertained. Then there is the problem of immunity, on which substantial progress has been made. Thirdly, there is the practical question of administration which cannot wait for the discovery of the cause or the solution of the problems of immunity. The present inquiry is concerned with administrative measures and the lessons to be drawn from their success or failure. In most parts of the country the principle of segregation has now been observed for a period up to 50 years or more—an appendix contains replies to a questionaire on this point from hundreds of sanitary districts—but this has not availed to achieve the effective prevention of the spread of scarlet fever. It is disappointing to learn, writes Sir GEORGE NEWMAN, that the exceptionally high rate of cases admitted to isolation hospitals, which to-day obtains, is not associated with a corresponding lowered incidence rate of the disease in the country as a whole. Nor does length of stay in hospital diminish the chance of the patient reinfecting his home on returning to it. The tendency therefore is for the routine application of these measures to give place to an intelligent application of the new knowledge of the relation of ear and throat conditions to infective processes, to the use of barrier-nursing and open-air treatment, and to the adoption of the Dick test and artificial immunity. If in these ways economy can be effected in the hospital isolation of scarlet fever, the use of beds can be reconsidered in the light of the incidence and severity of infectious disease prevalent in the locality. For in the last decade to set against the 10,672 deaths from scarlet fever there were 58,292 deaths from measles, 392,942 from pneumonia, and 13,645 from epidemic diseases of the central nervous system.

The conclusions reached by the committee of medical officers of the Ministry are based not only on the abundant statistical details obtained from the answers to the questionaire, but on a wide review of all the information available to the headquarters staff. The committee believe that in any well-ordered public health system both hospital isolation and home treatment must play a part; too little

[1] Some Administrative Aspects of Scarlet Fever. Reports on Public Health and Medical Subjects, No. 35. Ministry of Health. London: H.M. Stationery Office. 1927. Pp. 369. 6s.

attention has, they think, been devoted to the possibilities of efficient home treatment. There are districts and towns where home treatment is now being adopted at comparatively little cost and, as far as is known, without harm to the patients or the communities to which they belong. The further provision of nursing facilities would do much to ensure the successful development of these local experiments. In connexion with such home treatment the committee regard it as more rational to practise current rather than terminal disinfection—that is to say, to sterilise as quickly and as thoroughly as possible all articles exposed to contamination by the patient's discharges, and to observe a careful sick-room regimen during the whole time that the room is occupied by the patient. The destruction of remnants of food and fluids which have been handled by the patient demands more attention than it has hitherto received. These and other conclusions are stated in provisional, tentative, and guarded form, for the object of the report is to open the subject to wide discussion, not to close it. If the time is not ripe for universal action, the materials provided by Dr. PARSONS's very able and comprehensive report will bring it nearer.

Annotations.

"Ne quid nimis."

THE TREATMENT OF RABIES.

THIS country is fortunate in its freedom from rabies. Energetic muzzling stamped out the pest completely at the beginning of the century, and again when it was reintroduced in a dog smuggled by aeroplane during the war, and there has now been no case reported for six years. Switzerland and the Scandinavian countries are also fairly free, but everywhere else in the world it remains the same scourge that it was in the Middle Ages. The active immunity given by the Pasteur treatment has mitigated its terrors, but it is still a source of great loss and anxiety, and will remain so until facilities for treatment are so widespread that everyone exposed has immediate access to them. Statistics of the numbers treated are very difficult to correlate and far from being complete, but they show on the whole that the applications for protection grow considerably every year. The dangers of rabies and the existence of its antidote are now fairly well realised in all countries. The authors of a recent Austrian text-book,[1] in dealing with the results of protective inoculation, mention the chief difficulties of estimating the degree of protection it gives—namely, that it is very often unknown whether the bite was really infectious, and that individual immunity is so variable that it is impossible to determine whether any given patient would have developed the disease or not. What does stand out from the figures, however, is the importance of early treatment. With a week's delay the mortality-rate is 0·56 per cent.; with three weeks' delay it is 3·19 per cent. The percentage of fatalities among patients treated on the second day after the bite is only 0·088. The authors conclude that the Pasteur treatment reduces the probability of death in all cases from 10 per cent. to 0·6 per cent.

The method of protection has been little altered since its introduction in 1885, and consists of a series of injections of emulsion of an infected spinal cord which has been dried for varying periods. A dog is infected with rabies and killed at the height of the disease by bleeding; its spinal column is then removed and dried in caustic potash. After 12 or 14 days it loses all its virulence; after eight days an emulsion will still produce rabies now and again on injection into the dura; after five days it will evoke a normal attack, though with a slightly lengthened incubation period, and after four days or less its virulence is unimpaired. The weakening of its effect is purely quantitative. In Pasteur's original schemes the patient was given 14-day emulsion to begin with, the age being reduced by a day at each injection, until on the fifth day of the course he was getting six-day emulsion. Three-day virus was given on about the ninth day (earlier for severe and head-bites), and the whole course lasted 18–21 days. The virus was, of course, of the "fixed" type. After some years of use, however, it was realised that this series was not drastic enough; it let slip too high a proportion of cases, usually those with a more or less massive infection. Once it was realised that the fixed virus was practically non-pathogenic to man, the method was intensified, and the custom of nearly every institute is now to start straight away with five-day emulsion and decrease by a day on each of the first three days. A typical pattern in terms of emulsion-age is 5 4 3 2 4 3 2 3 2 3 2 3 2 2; the dose is 3 or 5 c.cm. daily. Although there has been little coördination between the many Pasteur institutes, the series in use differ but slightly one from another. Högye's method is similar, but dilution is employed instead of drying, and more use is made of variation in the dose. One of the most recent improvements in inoculation technique is that of Philipps. The brain is ground down with glycerine, and can be kept for some months in the dark at a low temperature; when required it is mixed with a 0·5 per cent. phenol and saline solution in the proportion of 1 part to 20. This mixture is heated at blood temperature for 24 hours to sterilise it. Out of 1540 patients Philipps had one death only. The chief technical advantage of this method is that a single substance is used throughout the whole series; the vaccine, moreover, can be transported any distance without losing any of its efficacy.

All these schemes have the drawback of requiring a period of from 13 to 25 days to complete them, and much work has been done to find a way of speeding up the immunising process. This is desirable not only for the convenience of everyone concerned, but for the greater safety of the patient, for the treatment is a race between the antibodies and the invading virus. The authors consider that the quickest and safest method is now that of Hempt, the director of the Pasteur Institute in Novisad, Jugo-Slavia. Brain substance is kept in 50 per cent. glycerine for a period varying from a few days to 24 hours, inversely with the severity of the wound. An emulsion of 1 part in 60 is made up for injection, and the doses fixed likewise according to the nature of the lesion; the total amount given is 4 g. for a head-bite, 3 g. for deep wounds, and 2 g. for slight tears. The treatment takes five days only, and the patient gets two injections a day; the first is of 5 c.cm., the next two of 10 c.cm., then one of 15 c.cm., and the remainder of 20 c.cm. On the last day three injections are given. A very severe case, where there has been a long delay, may have a sixth day of three injections. The results in a series of 2011 patients have been uniformly excellent. One only died, and he had undergone a delay of 16 days. In the latest modification of all, Remlinger proposes to employ undried cord kept in glycerine for varying periods; the virulence of the emulsion will be much greater than that of the preparation of dried substance. The first injection is to be of 25-day emulsion, which is sterile (the virulence disappears suddenly after about 24 days), and succeeding injections will be of rapidly increasing potency. The course is a five-day one. This method has not yet been sufficiently tested to be put into practice. The developments in packing injection-material for transit are perhaps the most important feature of the book from the standpoint of the administrator, for only when every general practitioner in the world can give the protective treatment will the problem of human infection be adequately dealt with. Even then there will remain the infinitely greater one of eradicating the disease from domestic and wild animals.

[1] Lyssa bei Mensch und Tier. Prof. Dr. R. Kraus, Dr. med. vet. F. Gerlach, and Dr. F. Schweinburg. Vienna: Urban and Schwarzenberg. 1926. Pp. 464. M.30.

PASTEURISATION OF MILK IN THE U.S.A.

IT is now more than 30 years since Mr. Nathan Straus, of New York, began his campaign in favour of milk rendered safe by heat. In 1908 he was still fighting for adequate pasteurisation and against commercial pasteurisation by the "flash" process. At that time his definition of adequate pasteurisation was the exposure of the milk to 157° F. for 20 minutes, followed by rapid cooling, whereas by the "flash" process the milk was exposed to varying temperatures above and below 160° F. for perhaps a minute. The U.S. Public Health Reports (Feb. 11th, 1927) show that 28 of the milk-borne outbreaks of infectious diseases recorded during the last 18 years were attributed to inadequately pasteurised milk. The same issue expresses the belief of the U.S. Public Health Service "that pasteurisation of milk is the most potent single force operating to prevent the transmission of milk-borne diseases," and states that the service is at present engaged in a study of apparatus in order to assist milk-control officials to formulate proper definitions and to secure improved methods. The issue of the reports for April 29th carries the matter a stage further. It indicates that flash pasteurisation has disappeared from the scene, and that the majority of State definitions of pasteurisation specify a temperature of 142° F. or 145° F. and a holding time of 30 minutes. The difficulties of securing the desired result are considerable. Even if the thermometer stands at the specified level for 30 minutes it is not certain that every particle of milk will reach the required temperature owing to cold pockets, foam, valve leakage, and unsatisfactory devices for indicating and controlling temperature and time. The inspector may not have all the technical information necessary to make the theoretical definition effective. Should the definition require an "approved apparatus" the local health officer would have to employ a sanitary engineer. And if every particle of the milk has to be pasteurised a higher margin of heat may have to be adopted which will interfere with the cream line, and interference with the cream line will produce serious public opposition to the universal use of pasteurised milk. Illustrations are given in the report of the modified apparatus designed to meet these difficulties. While the tests carried out by the Public Health Service have disclosed many defects these have, we learn, promptly been made good for the most part by modifications made on the spot without the apparatus being returned to the manufacturer.

This report should be of great value to those who have the supervision of pasteurisation in this country. We doubt if the British public is sufficiently interested in safe milk as yet. In reply to a question in Parliament on May 25th it was stated that there are now only 120 pasteurising establishments in England and Wales complying with the Ministry of Health's regulations and their definition that "pasteurised milk" must be retained at a temperature of not less than 145° F. and not more than 150° F. for at least 30 minutes and must then be cooled immediately to a temperature of not more than 55° F. We have heard of milk dealers who have installed a "holder" apparatus, but do not apply for a licence because they find that their customers are not interested in the question of adequately pasteurised milk. Another point arises in view of the American experience. A fee of £1 1*s.* is paid in respect of each plant. Does this imply that the local authority which grants the licence takes any responsibility with regard to the efficiency of the plant? Or, on the other hand, have we adopted the principle that the public health authorities are to judge the efficiency of the plant solely by the periodical bacterial examinations of the milk treated? It is obvious that the regulation that milk must "not be pasteurised more than once" cannot be enforced either by inspection of the plant or by examination of the milk. Furthermore, it does not seem probable that the officials in this country, whose duty it is to inspect the apparatus before the licence is granted, are better equipped with technical information than their colleagues in the U.S.A. All things considered, we cannot expect to get very far with voluntary methods, and ultimately, when further experience has been gained, it may be necessary to enforce pasteurisation of all milk except the two upper grades (Certified and Grade A (T.T.)) if we really wish to secure a safe milk-supply for a public that is not enthusiastic either for or against but rather expects such matters to be arranged for it by the statutory public health authorities.

BLOOD GROUPING IN EUROPE AND AMERICA.

THE nomenclature of blood groups was discussed at a meeting of the Health Committee of the League of Nations, of which a report has just been issued. Dr. T. Madsen, the President, pointed out that there were differences between the nomenclature adopted in Europe and America, and the Committee had been asked to secure international uniformity. The main difficulty was that the problem was not one for governmental regulation, though in a certain number of countries—notably Denmark—it was receiving official attention. There seemed to be no need to hold an international conference, since the question was not so much one of technique as of form. Correspondence would go some way towards defining the difficulties, and eventually a small number of persons might be called together to examine the possibilities of agreement. It was decided that the Section of Hygiene should investigate the problem on these lines.

CARBON TETRACHLORIDE IN THE TREATMENT OF DISTOMIASIS IN SHEEP.

CARBON tetrachloride was first used as an anthelmintic in animals in 1921 by M. C. Hall, then senior zoologist to the U.S. Bureau of Animal Industry,[1] who, in conjunction with Shillinger, in 1923 showed the drug to be an efficient and fairly safe remedy against certain nematodes in the alimentary canal. In 1922 this drug was used by Jeffreys in America against intestinal flukes in foxes, and in 1925 and 1926 was experimentally used in the British Isles for liver fluke (*Fasciola hepatica*) in sheep, by J. H. Norris in Ireland and R. F. Montgomerie in Wales. Since the publication of this experimental work large scale field trials have been made in this and other countries, and reports of the results are being awaited with interest. The drug has been shown to be very efficacious against the adult flukes in the bile-ducts of the liver, but, like extract of male fern, it has no effect upon the immature flukes in the liver parenchyma (the *F. hepatica* reaches the bile-ducts by direct penetration of the fluke embryo through Glisson's capsule). These immature forms become mature and are laying eggs in the bile-ducts in the fourth week after dosage, and consequently further dosage is necessary to destroy them. A dose of 1 c.cm. of carbon tetrachloride in gelatin capsule without previous starvation is sufficient to clear adult flukes from the bile-ducts of the sheep and, speaking generally, sheep will tolerate as much as 30 or 40 c.cm. of the drug in capsule. It is well to note, however, that in occasional instances flocks have been found which tolerate carbon tetrachloride badly and deaths have resulted. This is a matter which is now under investigation in Great Britain. In the meantime it behoves those who are about to use the drug upon sheep to try a few sheep first and find out how the drug is tolerated by the particular flock before dosing large numbers. Carbon tetrachloride possesses advantages in that sheep can be treated without preliminary starvation and can be dosed even when heavy in lamb or with lambs at foot. If further experiments can explain the reasons why carbon tetrachloride should prove toxic in some flocks and not in others, and if this toxicity can be avoided by some simple means, the drug will probably replace extract of male fern as a remedy for the cure of

[1] THE LANCET, 1922, i., 391.

distomiasis in sheep. The presence of impurities has been held by many workers to account for the variations in toxicity. Its application to human parasites was the subject of considerable discussion in 1924.[2] M. Khalil,[3] working in Egypt, has been attempting to discover whether the toxicity is attributable to sulphur impurities. Harold King has found carbon bisulphide in samples submitted to him for testing by the Medical Research Council, but in experimental animals Khalil found that a mixture of carbon tetrachloride and carbon bisulphide had no ill-effects. He is inclined to attribute the toxicity to the presence of sulphur compounds other than CS_2 and gives directions for getting rid of impurities in commercial samples. During 1924 he says that 80,000 people were treated at the Government hospitals by this drug without any fatalities.

PHILOSOPHY.

COMMON experience has amply shown that in education there are two disciplines which have conspicuous merit in helping the mind to learn to think accurately. One is the attempt to find the exact equivalent of the ideas of one nation in the language of another, which is translation. The other is to discover a coherent interpretation of human experience which can be expressed in words, which is philosophy. And anyone knows that medicine is as much in need as any subject of accurate thought and a nice appreciation of the meaning of words. Two years ago the British Institute of Philosophical Studies was founded with the special object of establishing a link between the professional philosophers and the educated public, and its second annual meeting was held on July 4th. The President is the Earl of Balfour, the chairman of council Prof. L. T. Hobhouse, the deputy chairman the Master of Balliol; the council is a long list of distinguished and respected names. There are some 1600 members and more than 500 enrolled for the courses of lectures which were given last winter, among which we notice a series on "Medical Psychology" by Dr. T. W. Mitchell. The Institute also publishes a quarterly journal from 88, Kingsway, London, W.C. 2, and obviously deserves the support of those who are seriously interested in intellectual progress.

THE COST OF NOISE.

THE report on harmful noise, which Prof. H. J. Spooner submitted to the International Fatigue Committee of the American Society of Industrial Engineers on May 26th, should serve to keep attention fixed on this important subject, and contains many observations of general interest. He believes that the most serious aspect of the problem has hitherto not been considered; this is the loss due to impairment of efficiency in industrial life, more particularly by interference with men of affairs and principals, whose capacity for clear thinking and hard work is perceptibly weakened by the babel of noise. He estimates that the economic loss due to this kind of wastage may conceivably be a great deal over a million pounds a week in this country alone; and though this figure may well be an over-estimate, no one will deny that the attempt to do mental work in noisy and distracting surroundings tends to lower efficiency and produce irritability. The uproar of mechanically-propelled traffic and of other machinery in our streets is the most serious source of noise, and the noisy environment of hospitals, nursing homes, and schools calls for earnest attention. Prof. Spooner believes that the most nerve-shattering sound in our streets is caused by tramway-cars; he considers that these vehicles have lost most of the reasons for their existence since the introduction of motor omnibuses, and points out that they are being gradually scrapped and are doomed to ultimate extinction. Here, perhaps, the thought is but the offspring of the wish, in which many motorists must share from ulterior motives. He makes other recommendations of interest to motorists—namely, that noisy ramshackle motor vehicles should be warned off the streets, that motor horns should be standardised to a low melodious pitch, that louder hooters should only be used in emergencies, and that "driving-on-the-hoot" should be prohibited. Such reforms are undoubtedly desirable, though difficult to enforce, and a beginning ought to be made in the attempt to diminish the uproar of the streets. The further proposal is made that the pneumatic rock-drills, used for breaking up roads, should not be permitted in towns, and certainly not in the vicinity of hospitals and schools. In factories and works, Prof. Spooner urges, designers of machinery should pay more attention to the balancing of rotating parts, particularly of those working at high speed, and to the mounting of certain machinery on antivibration supports; noisy machinery means excessive wear and waste of power, and the noise tends to reduce the productive powers of the workers and may be a cause of accidents. We hope that the movement for the reduction or prevention of harmful noise will achieve its object by awakening public opinion.

THE PREVENTION OF DENGUE.

THOUGH not in itself serious, dengue is a very uncomfortable disease, and causes a considerable loss of service. During 1925 818 cases were reported from the army in India; no statement is made as to the average time lost, but in naval cases during the previous year it was eight days. The incidence of the disease at Aden is discussed by Major G. H. Dive in the *Journal* of the Royal Army Medical Corps for April. After examining the clinical records of the station for the last few years, he concludes that there is a short term fever endemic there, appearing every summer, and always dengue though often otherwise named. The troops become infected from April to July, afterwards acquiring a considerable degree of immunity, perhaps lasting two years, so that the infection only becomes prevalent again if a new regiment has reached Aden later than July. Major Dive ascribes dengue to the abundantly present mosquito *Aëdes argenteus*. Though the local fever is sometimes called sand-fly fever, he has never seen a case of that disease at Aden, nor has he seen a phlebotomus there.

An epidemic of dengue occurred at Saigon in 1926, very fully and instructively reported by Dr. R. Pirot, a surgeon in the French Navy,[1] special attention being given to the cases on his own ship, *Craonne* (125 men). She reached Saigon from France in February, and on April 25th one of the crew returned from leave at Cape St. James and slept on the upper deck, unprotected by a mosquito net. On April 28th he sickened with what was later found to be dengue. As Dr. Pirot suggests, the subsequent history is illuminated by the work of Siler, Hall, and Hitchens.[2] Female *Aëdes egypti* (*stegomyia fasciata*) no doubt bit the first patient; after 11 days they became infective and bit other men of the ship who developed dengue from four to six days later. Sixteen cases came under notice between May 15th and 31st. In June dengue spread to other ships and establishments and Dr. Pirot saw 130 cases in the hospital; 80 per cent. of the Europeans of *Craonne* were attacked. There were on board her many *Aëdes egypti*, particularly gorged females, more of them being on the side of the mess-deck next the quay than on the outer side next the stream. Like Major Dive, Dr. Pirot notes the difficulty in such a climate of making men sleep under mosquito nets, and his opinion is that the aëdes mosquitoes should be exterminated, so that there would be no more dengue. Valuable information about the means of extermination of *Aëdes egypti* will be found in a paper[3] by Colonel W. P. Chamberlain, Medical Corps, U.S. Army, the chief health officer of the Panama Canal. Discussing

[2] THE LANCET, 1924, ii., 715.
[3] Ibid., 1926, i., 549.

[1] Arch. de Méd. Navales, 1926, cxvi., 305.
[2] See THE LANCET, 1926, i., 453.
[3] Military Surgeon, April, 1927.

the prevention of yellow fever for 22 years, extinct in the Canal Zone (unless imported), he points out that *Aëdes egypti* is a short-flying, domestic species which develops almost exclusively in artificial water-containers in the house or yard, and that its reproduction is best prevented by a properly piped water-supply, making cisterns unnecessary and permitting tanks and wells to be closed. The rest is conservancy, and breeding must cease if inspection does away with broken pots, old tins, sagging gutters, and the like which make casual pools in the rains. Besides, aëdes remain located in the house where they are infected and can be killed there by fumigation or otherwise The lesson appears to be that dengue need no longer be endured, since aëdes can be got rid of so much more cheaply than anopheles. Meanwhile, seeing that patients with dengue, as with yellow fever, are only infective to aëdes in the first three or four days of their illness, we must learn to diagnose the condition at once and put the patients under mosquito nets, while the mosquitoes that have been near the patient in his house or ship should be all immediately killed.

The essential, however, is to make it impossible for these mosquitoes to breed. That is how Gorgas banished yellow fever from Havana and the Canal Zone, and surely we might do as much at Aden and elsewhere now that the stages on the road have been made so plain.

THE EVOLUTION OF VACCINIA VIRUS FROM EPITHELIOMA CONTAGIOSUM.

IN a recent article on the mechanism of virus infections [1] we drew attention to a remarkable phenomenon exhibited by many virus diseases, which has no counterpart in bacterial diseases. Many virus infections in their clinical behaviour and in their spontaneous infectivity appear to be distinct and specific diseases. But experimental transmission can often break through this specificity and thus establish the same causal agent for apparently distinct virus diseases. Evidence is gradually accumulating that the vaccinia virus, for instance, can affect widely different species and there set up lesions which formerly were considered to be distinct diseases. Thus the observations of Heelsbergen and of Toyoda on fowl-pox, and of Zwick on stomatitis pustulosa contagiosa of the horse, have shown that these diseases are closely allied to each other and to Jenner's horse-pox and other animal variolas. A recent paper by Dr. C. G. Pandit [2] adds further evidence on this point. By intracutaneous inoculation of calves with the infective material from epithelioma contagiosum of fowls and subsequent repeated passages through calves, monkeys, and back to calves again Dr. Pandit claims to have evolved a strain of vaccinia virus producing the typical lesion and conferring immunity to inoculation with vaccinia virus. An interesting point is that calf passages alone are not sufficient to effect this development, but that the interposition of a passage through monkeys is necessary. The skin and cornea of rabbits reacted negatively to inoculation with the infective material taken directly from fowl-pox. But when inoculated with passage material obtained from different stages of development of the strain, a successful reaction was obtained first on the cornea, and in later stages of development also on the skin. In our article, referred to above, we pointed out in connexion with recent work on mosaic disease of plants that many of the apparently paradoxical phenomena observed in the experimental transmission of virus diseases may be due to the fact that the infective material is loosely identified with the "virus." But actually in transmitting the disease the whole infected tissue is used and this in addition to the virus probably contains other substances which modify and determine the pathogenic action of the virus. The present series of observations present features very similar to those recorded in the transmission of mosaic disease from one species of plant to another and are capable of the same explanation.

[1] THE LANCET, 1927, i., 32.

[2] The Relation of the Virus of Contagious Epithelioma of Fowls to the Virus of Variola and that of Vaccinia. I. The Evolution of a Strain of Vaccinia Virus from the Virus of Contagious Epithelioma of Fowls. Indian Journal of Medical Research, 1927, xiv., 885.

TYPE CULTURE COLLECTIONS.

THE recent publication [1] of the catalogue of the cultures maintained by the American Type Culture Collection is a reminder of the solid if unobtrusive progress that has been made in recent years in the equipment and maintenance of new collections of bacteria and of the remodelling of existing ones. In the years before the late war the principal source of world supply was provided by the collection maintained by Král on a commercial basis at Prague. This collection was, after the war, transferred to the Serophysical Institute at Vienna, where it is under the direction of Dr. Ernst Pribram. In addition, the collection of the Pasteur Institute in Paris maintained by Mr. Binot and the private collection of the Lister Institute in London formed other sources of supply. But these were not widely available and were for the most part confined to bacteria of purely medical interest.

In 1911 a Bacterial Collection and Bureau for the Distribution of Bacterial Cultures was established at the American Museum of Natural History in New York City under the curatorship of Dr. C. E. A. Winslow. In 1922 the collection was transferred to the Army Medical Museum in Washington, D.C., and was placed under the control of the Society of American Bacteriologists, pending more permanent arrangements. For the last couple of years the collection has been under new management and has been housed in Chicago at the John McCormick Institute for Infectious Diseases, with Dr. G. H. Weaver as curator and under the general direction of a committee representing the Society of American Bacteriologists, the American Phyto-pathological Society, the American Zoological Society, and others. In addition to the organisms actually maintained at the Institute, the private collections of special workers, such as the mycological collections maintained by Dr. Charles Thom and Miss Margaret B. Church at Washington, D.C., and the soil actinomyces maintained by Dr. S. A. Waksman at New Jersey Agricultural Experiment Station, are available to the American research worker through the good offices of the Type Collection. The catalogue which has been issued recently to some extent follows the form that has been adopted by the National Collection of Type Cultures in this country, and is of interest to general and special bacteriologists and to the systematist. The whole-hearted adoption of the classification devised by Bergey in his "Manual of Determinative Bacteriology" is not, however, beyond criticism, especially as the system of nomenclature has not met with anything like universal acceptance even in the United States. This criticism is in no way directed against the general labours of American systematists, who have accomplished much valuable spade work in this field and whose researches in general systematic bacteriology will be of the greatest assistance when the whole question of bacteriological nomenclature comes up for consideration—as we understand it may—at the next International Botanical Congress to be held in 1930.

In our own country the long-considered scheme of the Medical Research Council (then the Medical Research Committee) for the formation of a National Collection of Type Cultures bore fruit in the years following the war. In 1920 the Council were able, by courtesy of the governing body of the Lister Institute of Preventive Medicine, to make such a collection at the Institute under the general direction of Prof. J. C. G. Ledingham and the curatorship of Dr. R. St. John-Brooks, the existing collection of the Lister Institute forming a nucleus for future develop-

[1] American Type Culture Collection. Catalogue of Cultures, 1927. Waverly Press, Inc., Baltimore.

ment. Over 2000 strains of micro-organisms are now maintained there, and some thousands of cultures are distributed every year to workers in this country and abroad. In addition to supplying bacteria of importance in human and veterinary bacteriology the bureau has a collection of representative fungi of pathological and economic importance, and a collection of yeasts and other organisms of use in fermentation and allied industries. In this way many important strains have been preserved which otherwise might have been lost owing to changes in the personnel in charge of private collections elsewhere. For example, the Karlsberg Collection of yeasts and allied organisms is no longer kept on its previous basis, and many valuable strains might have been permanently lost if facilities had not been available for maintenance elsewhere. The mycological section of the National Collection is under the supervision of a standing committee of the British Mycological Society, which includes representatives of most of the important botanical institutions and teaching bodies in this country and has already been of considerable service to mycologists at home and abroad. In this connexion mention may be made of the Centralbureau voor Schimmelcultures, at Baarn, Holland, which is also available to British workers. Over a thousand species of fungi are kept there, and the collection is being constantly augmented. In addition to these establishments, private collections, many of them supplied in part from the resources of the British collection, are maintained in increasing numbers in various countries. Some of these, at any rate, may be considered as nuclei for future national culture collections. There is room for all, and they will all serve a useful purpose, giving ready and willing service to the workers in the local field and forming centres of exchange and friendly relationship with the collections of other countries. In this way valuable and historic strains will insure their maintenance, and increased facilities for comparison and for typing purposes will be available to workers throughout the world.

THE REPRESENTATIVE MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE representatives of the British Medical Association when they meet at Edinburgh this week-end will have their first opportunity of considering as a body the recommendations of the Royal Commission on Lunacy, for the report of the Commission appeared just after the conclusion of the Nottingham meeting last July. To assist the meeting in its discussion of the report the Lunacy Committee of the Association has drawn up a critical memorandum from which it appears that in two matters of prime importance the policy of the Association is at variance with that of the Commission. These concern the protection for medical practitioners who sign certificates under the Lunacy Acts, and the facilities for treating the earliest manifestations of mental disorder. Suggestion is made that the Representative Body of the Association should press for introducing into the judicial detention order words indicating that before signing the order the judicial authority has satisfied himself that the medical practitioner concerned had exercised reasonable care. Such a statement would establish a presumption in favour of the practitioner should his conduct be brought in question subsequently. As to the facilities for treating early mental disorder, a recommendation is made by the Council of the British Medical Association that specialist work in connexion with the treatment of patients suffering from mental disease in its early stages should not be carried out by whole-time medical officers of public health or local government authorities, but on a part-time basis by medical practitioners who have special knowledge of the subject. The Royal Medico-Psychological Association, on the other hand, suggests that to divorce the diagnosis and treatment of mental disease in its early and late stages is scientifically and administratively unsound, and that the implied contention that medical staffs of public mental hospitals are not competent to treat early cases of mental disorders is ill-founded. Other subjects likely to provoke discussion at the representative meeting are the proper functions of laboratories under public health authorities; the allocation of any fees received for pathological work done in hospitals or medical schools from patients able to pay; and the attitude of the profession to the establishment by trading firms of laboratories as subsidiary enterprises for the purpose of offering pathological examinations and reports on individual cases.

THE ROYAL SANITARY INSTITUTE.

THE Thirty-eighth Congress of the Royal Sanitary Institute began at Hastings on Monday, July 11th. The members, numbering about 1500, included over 800 delegates appointed by local governing authorities in this country and also representatives of foreign Governments, India, the overseas dominions, universities, learned societies, and voluntary associations interested in health work. The Mayor of Hastings received the delegates and a public luncheon followed. In the afternoon the health exhibition was declared open, and later the Home Secretary, Sir W. Joynson-Hicks, delivered his presidential address. He referred to the organisation of the police forces and of the public health services as two of the great political achievements of the nineteenth century. Much had been done in the last 50 years, but much remained to be done. Many slums still existed. We had cleaned our streets, but we had still to clean our skies. He referred especially to the administration of the Factory Acts, which covered places in which 6,000,000 persons were employed. Large numbers of the workers could not return home to dinner, and remained in the atmosphere of the factory for three-quarters of their waking day. A new factory Bill was to be put before Parliament next session. It was 26 years since the last general factory Act was passed, and the object of the new Bill was to bring the backward factories up to the level reached by progressive employers. The standard of cleanliness was not always high, perhaps because women had taken no hand in it. The new Bill would strengthen the provisions as to cleanliness with the object of improving the health and efficiency of the workers and in food factories with a view also to the protection of the public. The tonic effect of better lighting would also have attention, and better ventilation would be aimed at, particularly to cope with the lowering of bodily vigour by stagnant air. Personal hygiene was another important matter to be fostered by the provision of cloak-rooms, washing facilities, overalls, and so forth. In a food-packing factory a higher standard of hand cleanliness had recently been secured by the provision of manicure treatment. Medical examination was recognised as a useful preliminary to work in factories, and re-examination in certain dangerous trades was required in order to prevent industrial disease in its early stages. About 15,000 cases of sepsis occurred in the factories in a year, most of which could be prevented if the workers made use of the first-aid boxes provided. Many employers now provided dental clinics. Further provision would be made in the new Bill for medical supervision, especially in industries where there is a low standard of health or a high sickness-rate. It was not proposed, however, to make the appointment of a factory doctor compulsory; no evidence had been submitted to justify such a step, and it was not clear that there was a demand for it by the workers of the country. In conclusion, the President referred to the many-sidedness of public health, to its positive as well as its negative tasks, and quoted the definition of hygiene as an art of which the practical aim is "to render growth more perfect, decay less rapid, life more vigorous, death more remote." The work of the congress, which is distributed over six sections, and seven conferences, began in earnest on the following day with the opening of the Section of Sanitary Science and three of the conferences.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXII.

THE TREATMENT OF CORNEAL ULCERATION.

ULCERATION of the cornea is probably, in the majority of cases, the result of trauma. But, in most cases, the trauma is of very slight degree, and the resulting ulceration is due to the fact that the condition of the cornea, conjunctival sac, and general state of the individual are favourable to the advance of septic processes. There is, however, a comparatively large minority of cases of ulceration of the cornea where the ætiology is different. In these cases bullæ form around the nerve-endings in the corneal epithelium, and these bullæ soon break down, forming small ulcers, usually multiple and often grouped in a branching pattern in the central zones of the cornea. This is the type of corneal ulceration often seen in association with febrile states, and is a peripheral expression of a poisoning or irritation of the nerve or nerve ganglion, and is not primarily the result of trauma. Mention should also be made of the ulceration of cornea associated with phlyctenular disease. The treatment of all types of ulceration is, generally speaking, the same.

Corneal ulceration, except in certain indolent cases in elderly people, causes extreme discomfort and pain —in bad cases very severe pain. Photophobia is characteristic of all corneal lesions, and often a marked blepharospasm, leading to a spasmodic entropion of the lower lid, is present. The pain is located to the site of the lesion, but in the more severe cases, in which there is an associated iritic engorgement, there will be in addition much circumorbital and temporal pain, often neuralgic in character. In the early stages the eye, on examination, will be found injected. The injection will be most marked in the region of the limbus, immediately around the cornea, and it will be both superficial and deep—the superficial conjunctival vessels being engorged, and the deeper vessels in the sclera also, these latter giving a deeper homogeneous bluish-red coloration to this region. If the corneal lesion be small, it may be hard to see; it may be rendered more easily visible by instilling into the conjunctival sac a drop of 1 per cent. fluorescein, followed by a few drops of saline, after which the ulcerated area will be stained a greenish-yellow colour. An early corneal ulcer will appear as a small, usually roundish, grey area, its margins fading off gradually into the surrounding clear cornea. Later, or in more severe cases, an increasingly large area of the cornea will be involved, and, in extreme cases, the whole cornea may be affected. The ulceration may take a crescentic shape, the convexity of the ulcer pointing mesially, extending in this direction and burrowing deeper as it grows into the corneal tissue. In some cases cellular exudation makes its appearance in the anterior chamber and is seen as a yellowish layer lying at the bottom of the anterior chamber, having a flat upper border. This layer, known as hypopyon, indicates that the condition is a severe one. In elderly people a rather indolent form of ulceration is sometimes seen; here the situation of the ulceration is marginal, just inside the corneo-scleral junction, and the ulcerative area may be fairly extensive in a radial direction, but does not usually extend centrally.

General Measures.

Certain general considerations should be kept in mind. The fact that a septic process has established itself and is in progress suggests that the patient's resisting powers to infection may be reduced. It is necessary, therefore, not to neglect his state of health, the condition of his bowels, the presence of other foci of sepsis, and so forth.

Local Measures.

The Lacrymal Sac.—As to the eye itself, it is of paramount importance to investigate the lacrymal excretory apparatus. Pressure should be made over the lacrymal sac and the two punctal openings watched carefully for the presence of regurgitation; it may even be well to syringe fluid through into the nose in order to ensure that these passages are patent. If regurgitation from the lacrymal sac is found it is necessary to deal with this at once, as here will be almost certainly the cause of the corneal infection. The best procedure is to excise the sac forthwith. If for some reason this cannot be done, it is possible to seal up the two canaliculi by passing the cautery into them or by tying a suture around them, but this is by no means so satisfactory as the excision of the sac.

Ointments.—Having made sure of the condition of the lacrymal sac, the next thing is to treat the eye itself. The routine basic treatment of a corneal ulcer is the instillation of atropine ointment into the conjunctival sac, and the application of a firm pad and bandage. 1 per cent. atropine ointment should be used, and it is quite a useful practice to incorporate 1 per cent. yellow mercuric oxide ointment with the atropine ointment, the yellow mercuric oxide ointment having a stimulating and antiseptic effect. The ointment should be applied to the eye two or three times in the 24 hours, and just before the ointment is put in the eye should be bathed with warm boric lotion. The best way to do this is with an undine, or if this is not obtainable, to drip the lotion into the conjunctival sac with a sponge. All the intervening time a firm pad and bandage should be kept applied; an eye-shade is useless and its use in these cases is to be deprecated. The bathing of the eye should not be overdone, and in fact excessive irrigation is harmful. In slight cases of corneal ulceration it is perhaps not necessary to confine the patient to bed, but it is well to do so if the case is a severe one or shows signs of progressing.

Heat.—The firm pad and bandage generally tends to relieve the pain to a great extent, but where the pain persists, and especially where the circumorbital pain indicating an associated iritis is present, the use of dry heat over the pad by a hot box or electric apparatus, and the application of leeches to the temple of the affected eye will afford much relief. The usual analgesic drugs, such as aspirin, are in no way contra-indicated.

If the conjunctival sac appears in a septic condition, it may be well to use protargol drops, 5 per cent., twice a day, in addition to the above procedure. In some cases magnesium sulphate, 5 per cent., used as drops, or as a lotion twice a day, appears to give very good results, particularly in the bad ulcer cases associated with a hypopyon.

Intractable Cases.

The majority of corneal ulcer cases will respond to treatment carried out on the above lines. If, however, the ulcer appears to be progressing, it will be well to attack the ulcer itself. This is most easily done by applying pure carbolic acid to the ulcer. The procedure is as follows.

Carbolisation.—A drop of 4 per cent. cocaine is instilled into the eye and the lids are held apart, preferably by a lid speculum. The surface of the ulcer is dried by laying a clean piece of blotting-paper upon it. A small pointed piece of wood—a sharpened match will serve the purpose very well—is dipped into the pure carbolic and is then applied to the ulcer. (The match should be well soaked, but no drop should hang from it.) It is well gently to curette the ulcer before applying the carbolic; usually there is a small amount of débris lying in the centre of the ulcer, and this should be removed first. Carbolisation of a corneal ulcer has the advantage that it is comparatively easy to do and can be repeated at frequent intervals. In bad cases the actual cautery at dull red heat may be applied to the ulcer with advantage.

Paracentesis of the Anterior Chamber.—If the ulcer extends in spite of the cauterisation, and especially if there is a large hypopyon present, as is usual in such cases, the question will arise as to whether paracentesis of the anterior chamber should be performed. This

procedure anticipates the actual perforation of the ulcer itself, and by relieving the tension on the corneal tissue favours resolution. If, in spite of all these measures the ulceration still progresses, all hope of saving good vision in the eye will have gone, and it will become a question of attempting to keep the eye in the head with some sort of vision. In such a state of affairs section of the cornea (Guthrie's or Saemisch's section) should be performed. A fine cataract knife is entered at one side of the cornea and pushed through the anterior chamber and out at the other side of the cornea, and then made to cut out vertically through the whole breadth of the cornea. In a remarkably high percentage of such cases, after this has been done the progress is stayed and the eye slowly quietens down. Should this not happen it will probably be necessary to eviscerate the globe.

Prognosis as to Vision.

If the process of ulceration has only involved the corneal epithelium complete resolution with absolute transparency will result; in the majority of cases of septic ulcer, however, the process will have involved the substantia propra of the cornea. The corneal tissue proper does not regenerate completely and an opaque scar will be the result. It is possible, after the actual ulceration has healed, to modify the opacity of the resulting scar to some extent by the use of such measures as insufflations of powdered calomel, the instillation of dilute yellow oxide of mercury ointment, or dionin drops 5 per cent. Too much, however, must not be expected from these measures. If the corneal scar occupies the centre of the cornea and obstructs the pupil, it may be possible to improve vision by performing an optical iridectomy, which will enlarge the pupil so as to extend under a clear, or relatively clear, portion of the cornea. Tattooing of the corneal scar with Indian ink will improve the appearance considerably and, in slight scars, will actually improve vision by making them more opaque and so preventing them from refracting light irregularly.

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Special Articles.

BRIGHT'S DISEASE.

THE CENTENARY OF THE DISCOVERY.

ON the occasion of the centenary of the discovery of Bright's disease by the great Richard Bright, who was physician to Guy's Hospital from 1820 to 1843, an interesting ceremony of celebration was prepared by the hospital.

The proceedings commenced on Friday, July 8th, at 11 o'clock, when Prof. Ludwig Aschoff, of the University of Freiburg, gave a demonstration of the pathology of Bright's disease; Dr. John Fawcett took the chair in the Anatomy Lecture Theatre.

Disorders of the Kidneys with Symptoms of Bright's Disease.

Prof. Aschoff, disclaiming any intention of discussing all the symptoms in the complex clinical picture denoted by the term Bright's disease, made a classification based upon the cardiac conditions, following here Bright's own example. In distinguishing the cases without hypertrophy from those with it, Prof. Aschoff assumed that acute initial changes in the kidney were not in question, and concluded that the clinical phenomena, which should occupy the central interest, were glomerulo-tubular nephritis and arterio-sclerotic or genuine contracted kidney. In a brief recapitulation of the whole subject he evolved the following scheme:—

(*a*) *The so-called Nephroses.*—Without increase of blood pressure or hypertrophy of the heart. Marked albuminuria and œdema. Abnormal permeability of the cutaneous and renal vessels for albumins and lipoids (lipoid dystrophy of the kidneys), referable to changes of metabolism.

(*b*) *Glomerulo-tubular Nephritis.*—(1) Acute stage. *Acute glomerulitis* and *glomerulo-nephritis.* Acute dilatation of left heart with acute hypertonicity. Acute œdema. Marked albuminuria. Infectious-toxic lesions of cutaneous and glomerular vessels. (2) Subacute stage. *Large mottled and white kidney.* Intermittent œdema. Variable albuminuria. Slight or absent hypertrophy of the heart. (3) Chronic stage. *Secondary contracted kidney.* So-called smooth contracted kidney. Variable albuminuria, especially during a relapse. Repeated, so-called renal œdema. Death most frequently in uræmia.

(*c*) *Arterio-sclerotic Contracted Kidney.*—Begins with hypertonicity. Secondary morphological changes of arterioles of abdominal glands, especially kidneys. (1) Precirrhotic stage. So-called *idiopathic hypertrophy.* Death from apoplexy. (2) Cirrhotic stage. So-called *granular atrophy of kidneys.* Marked hypertrophy of heart. Slight albuminuria. Œdema static. Death from heart failure or cerebral apoplexy as result of athero-sclerosis of small cerebral arterioles.

(*d*) Special or combined renal diseases. (1) *Focal embolic glomerulo-nephritis of* Loehlein with thrombo-endocarditis ulcerosa lenta. Doubtful transition to secondary contracted kidney. Hæmaturia, less albuminuria. Mixed œdema, presumably chiefly cardiac. (2) Arterio-sclerotic contracted kidney with recent arteritis and glomerulitis. So-called *malignant sclerosis* of Fahr. Death from uræmia. (3) Secondary contracted kidney with subsequent sclerosis of arterioles. Death from heart failure, apoplexy, or uræmia.

If we compare this scheme with Bright's introductory remarks to his Selected Reports of Medical Cases of the year 1827 we see that Bright insisted on the separation of all the forms of œdema which can be explained by local heart failure or circulatory disturbances, or by disease of the lungs or liver, from true dropsy, as it is found in lesions of the kidneys. Only the *nephroses* and the *glomerulo-nephritides, together with the resulting secondary contractions of the kidneys,* are to be designated by the term disorders of the kidneys with symptoms of Bright's disease in its strict sense. The arterio-sclerotic contracted kidneys, with their prevalent cardiac œdema, do not belong here. But since Bright himself figures kidneys of this kind and does not always distinguish sharply between the different sorts of œdema, but only considers the coexisting kidney trouble to be essential for his classification, we must include arterio-sclerotic kidneys in our consideration of renal disorders with symptoms of Bright's disease. But we must realise fully that the expression "symptoms of Bright's disease" is more suitable than "Bright's disease of the kidneys," since the latter embraces too many things. Even the term "symptoms of Bright's disease" is quite vague enough, and requires further qualification. It might be well to use this centenary to give a narrower definition to "the symptoms of Bright's disease" and to *limit them to those symptoms that are presented by toxic and inflammatory albuminuria and the so-called renal hydrops.* These symptoms of Bright's disease in the narrower sense are found only with the so-called nephroses (lipoid-dystrophies), the glomerulo-nephritides, and the glomerulo-nephritic contracted kidneys. Since the nephroses are relatively rare, and still form a much-disputed chapter, it follows that *the symptoms of Bright's disease are, and will be, associated for us with the idea of glomerulo-nephritis and the glomerulo-nephritic contracted kidney.*

A Physiological Discourse.

At noon Prof. Lemierre, of the University of Paris, who had taken Prof. Widal's place at very short notice, delivered a discourse on selected cases of Bright's disease in the Physiological Lecture Theatre, when Sir William Hale-White took the chair.

The Bright Oration.[1]

At 1.30 a party of distinguished guests were entertained to luncheon in the Governors' Court Room, among those present being the Earl of Balfour, who presided later in the Physiology Theatre at the delivery of the Bright Memorial Oration by Dr. W. S. Thayer, Emeritus Professor of Medicine of the Johns Hopkins University, Baltimore.

Prof. Thayer first outlined in detail Bright's general education at Exeter and in Edinburgh, including a brief account of his well-known expedition to Iceland with Sir George Steuart Mackenzie. In dealing

[1] This report is an abstract of the full Oration which will appear in the next volume of the Guy's Hospital Reports.

with the early work at Guy's Hospital he made the interesting note that it was through the stimulus of Astley Cooper that Bright early gained his interest in morbid anatomy, while another of his teachers William Babington, interested him in geology. He returned to complete his medical education in Edinburgh and then, after keeping two terms at Peterhouse, Cambridge, went for various periods during 1814, 1815, 1816, and again in 1818 on to the continent, travelling often through scenes of war. He recorded his various experiences in a volume published in the last-named year illustrated with sketches made with his own hand.

This book, said Prof. Thayer, gives one the picture of a young man of six-and-twenty who is capable of observing and describing the customs and life of a people new to him with measure and charity and understanding, seeking out and recognising that which is good, and never allowing a hasty or an unkind criticism to escape his pen; such measure and such understanding were not, said the orator, common at six-and-twenty, but were characteristic of Bright throughout. In 1820 he became assistant physician at Guy's Hospital, and in the same year his scientific accomplishments, proved by his studies in geology and botany, were acknowledged by election to the Fellowship of the Royal Society.

Of Bright's work in the hospital the orator said:

"From the day he entered Guy's Hospital he devoted himself whole-heartedly to the study of morbid phenomena, year after year spending as much as six hours a day at the bedside and in the necropsy room. Occasional notes of cases demonstrated during his visits show how carefully, even at this early period, he observed and noted the recondite; an example is a good description of what, obviously, was an instance of syringomyelia. For seven years he published little or nothing, but never were seven years better spent. On the 13th of August, 1826, Laënnec died, leaving the legacy of his great work with the immortal descriptions of tuberculosis, of pneumonia, of bronchiectasis, of emphysema, the work which laid the foundations of modern physical diagnosis of diseases of the chest. Bright took up the torch and, a twelvemonth later, one hundred years ago, but three years after he had come into his wards, rendered a noble account of his stewardship at Guy's Hospital in the shape of a beautiful quarto volume entitled Reports of Medical Cases Selected with a View of Illustrating the Symptoms and Cure of Disease by a Reference to Morbid Anatomy. This remarkable publication was a careful, laborious collection of observations, clinical and anatomical, made for the most part during the three years of his service as full physician, together with such conclusions as he felt justified in drawing—'an attempt,' says he 'to render the labours of a large hospital more permanently useful by bringing together such facts as seemed to throw light upon each other . . . . To connect accurate and faithful observation after death with symptoms displayed during life must be in some degree to forward the opportunities of our noble art.' He is not trying to lay before his readers a succession of striking novelties; utility is his first object. His work will not 'in theory at least be thoroughly completed until every disease which influences the natural structure, or originates in its derangements, has been connected with the corresponding organic lesion.'"

Prof. Thayer then briefly described what was the accepted knowledge when Bright began his extensive studies.

He mentioned, as characteristic of Bright's thoroughness that, when describing some illustrative cases he made an allusion to the altered structure in a kidney, observed in the post-mortem examination of a patient 12 years previously, and produced the sketch which he had made at the time. A second quarto volume of Reports of Selected Cases soon followed, and some three or four years after the earliest observations were made we find that his work had become the object of world-wide interest and discussion. In 1836, in the first volume of Guy's Hospital Reports, he gives a more or less complete summary of his work, and Prof. Thayer enumerated the headings of many of the remarkable records, noting that Bright had actually recounted many instances of Jacksonian epilepsy, had recognised the significance of the syndrome, and had described it repeatedly and with great clearness. Bright also described with singular accuracy two instances of amnestic aphasia with central lesions. The second quarto appeared but seven years after Bright had acquired the opportunities offered by wards of his own. The quiet, modest young man, who had schooled himself from the beginning to observe, to note, to picture, to record all that which he could grasp of nature and her works, had been true to his promise; in his medical inquiries he had shown the same keen, sure power of observation, the same industry, the same mental poise, the same sound, sane judgment that he had manifested in his earlier writings. At the age of two-and-forty he had seen and comprehended and recorded and illustrated his experiences in communications which stand out among the great contributions to medicine. In 1832, following the publication of his second quarto, Bright was promoted from Licentiate to the full Fellowship in the Royal College of Physicians.

Prof. Thayer next reviewed the contents of the first volume of the Elements of the Practice of Medicine, written by Richard Bright in association with Thomas Addison. The second volume was never published and Dr. Thayer alluded in appropriate terms of comic contempt to the uninformed nature of the reviews which the book received. Bright, he said, examined that which was before him with an objectivity which amounted almost to genius. That which he observed he *saw*, he remembered, he appreciated; often he recorded. To him who knows how to observe, who has that which we call "insight," to him Truth reveals much that she hides from the many. A disinterested lover of truth, he was oblivious of questions of priority or of personal fame, going out of his way to give credit to his colleagues and to his associates for work done at his suggestion and under his direction. He lost nothing by his generosity. For generosity fame has a sharp and comprehending eye.

An amusing interlude in the oration was furnished here by a description of the activities of one Richard Bright, M.R.C.S., the author of a popular treatise on the "Diseases of Females: Every Woman's Book or Female's Physician." It is hard to believe that this work, which obviously was not scientific and was written mainly in the interests of its author, should have been actually ascribed for nearly 50 years, in one important medical bibliography at least, to the great Richard Bright whose work is not alluded to in the book. Richard Bright paid no attention to the ungenerous comments made upon himself owing to the confusion of personalities, and he treated with equal contempt certain quack advertisements which appeared to allude to his successes in an unprofessional way, "though THE LANCET made fervid protests."

Of Bright's prescience in forestalling at Guy's Hospital what is now the accepted method of conducting medical research—namely, by coöperation and team work—the orator said:—

"Bright had enjoyed the privilege of his position at Guy's for nearly 20 years. He had made the most of his opportunities and had observed keenly and recorded accurately and conscientiously that which he had observed. That 'chastened power' of generalisation and the 'cautious habit of reasoning upon facts' which he had urged upon his students had enabled him greatly to enrich medical literature. He had become an international figure and one of the leading consultants in London. In 1843, at the early age of four-and-fifty, he resigned the hospital positions of which he had made such good use. But the last use that he made of his service was notable. In the spring of 1842 he obtained the permission of the authorities of Guy's to set aside two clinical wards, 42 beds in all, for a period of six months, for the intensive study of renal disease; in his own words 'to examine, as far as it was possible, the changes which accompanied the secretion of albuminous urine in the various functions and secretions of the body; whilst at the same time we registered the various circumstances connected with the origin, progress, and treatment of the disease;—a disease than which there is certainly none which offers a more extended field for well-directed observation.' This experiment, which Bright regards as the first yet made in England 'to turn the ample resources of an hospital to the investigation of a particular disease, by bringing the patients labouring under it into one ward, properly arranged for observation,' was wisely conceived and well executed. Between the two wards was a consulting and registration room with a communicating laboratory—what we should call a 'clinical unit.' The results were published in the Hospital Reports for 1843 in the names of his chief associates, Barlow and Rees, with a short prefatory note by Bright. The communication is a fitting climax to Bright's labours on renal disease, and marks in striking manner the progress which clinical medicine had made in his day; detailed clinical histories; thorough and accurately recorded physical examinations; careful necropsies; chemical studies of the blood and fluids by Rees, who sets forth the hydræmia; the existence in the blood of one of the ingredients of the urine its like presence in milk and fluids effused in various cavities the deficiency in the urine of one or more of its natural ingredients, the hyposthenuria, the albuminuria.

"But what is yet more striking and quite characteristic is that these studies, planned, inspired and directed by Bright, should have been published in the name of his associates who had done the detailed work—that his name should have appeared only in the preface, while h

scrupulously mentions the names of Barlow's internes and Rees' laboratory assistant."

With the following eloquent words the oration closed :—

"One cannot look back on this life of unusual achievement without a sense of warm admiration for the man. Happy in his birth and in the surroundings and conditions of his early life, cultivated by travel and society, an artist, a linguist, a man of scholarly tastes, Bright made full use of his opportunities. Modest, simple, high-minded, mellowed by the broadening and softening influences of the experience of a practising physician, Bright appears to have been in the true sense of the word a gentleman, possessed of the μεγαλοψυχία of Aristotle, one who moved among men, high and low, with courtesy and sympathy and charity. His equanimity, the sober restraint of his language, his studied avoidance of intemperate or provocative words or acts, excite one's admiration. He seems to have had a rather unusually winning simplicity and purity of character, to which his obituary notices bore touching testimony. He was a great observer. He was not given to hasty speculation. His mind seemed never to wander from nor to anticipate the phenomena on which his attention was fixed . . . . He was not brilliant. He made at first no great impression on those about him. He was a simple, straightforward, kindly man, who met life with equanimity and charity and tolerance; a conscientious, painstaking physician; a patient, careful, scrupulous, time-taking, thoughtful student; and in the end he stood out as one of the great figures in the history of medicine."

THE BRIGHT MEMORIAL MEDALS.

Dr. A. F. Hurst proposed the vote of thanks to Prof. Thayer for his address and, this having been recorded unanimously, he presented to Lord Balfour the following for the reception of the Bright Memorial Medal: Prof. Thayer, Prof. Aschoff, and Sir John Rose Bradford; Prof. Lemierre, representing Prof. Widal, was also presented. To each of the recipients in order Lord Balfour, in presenting the medal, made a characteristically happy speech. He thanked Prof. Thayer warmly for his presentation of a great man of science who was also a beautiful character, and recalled the fact that when he was Prime Minister it had fallen to him to recommend Sir William Osler for the Regius Professorship at Oxford, and so, in some small sense, to have been connected with Prof. Thayer's succession to Osler's position at the Johns Hopkins University. He alluded in happy phrases to Prof. Aschoff's eminence as a pathologist, warmly thanked Prof. Lemierre for coming at so short a notice to give them the advantage of hearing French contemporary wisdom, and to the President of the College of Physicians he expressed the debt of all present for his fine scientific work on various aspects of renal disease.

Dr. Hurst then stated that when the celebration of the centenary of Richard Bright's work was first contemplated at the hospital where his work had been done, the thoughts of Guy's men had turned naturally to their great fellow-student, the late Prof. Starling. Death had unfortunately intervened, but he asked Lord Balfour to entrust him, on behalf of Mrs. Starling, with the Bright Memorial Medal which the School had decided to award to her husband prior to his death.

A collection of Bright relics was on view in the Gordon Museum, while the laboratories in the Medical School were open for inspection.

THE MINISTER OF HEALTH AT BIRMINGHAM.—On July 8th Mr. Neville Chamberlain addressed the members of the College of Nursing in conference at Birmingham, incidentally remarking that it was the fifth occasion in as many weeks that he had found himself speaking on nursing matters. He took as his subject: "The place of education in the provision of a proper nursing service," but in reply to questions held out no hope that the education authorities were likely at present to be able to assist the profession with grants. He had been giving time, he said, to the consideration of a project for the establishment of a post-graduate school of medicine in London, for the benefit of practitioners from all parts of the Empire. For this there seemed an undoubted demand.

THE LISTER MEDALLIST.

PROF. EISELSBERG'S ADDRESS.

EVERY three years a Lister Medal is awarded in recognition of distinguished contributions to surgery. The award is made by a committee representing the Royal Society, the Royal Colleges of Surgeons of England, Scotland, and Ireland, and the Universities of Edinburgh and Glasgow, and this year the recipient is Prof. Anton Freiherr von Eiselsberg, of Vienna. On July 7th, after a reception, the presentation was made by Sir Berkeley Moynihan at the Royal College of Surgeons of England, of which Prof. Eiselsberg became honorary Fellow in 1913.

In an address delivered in the theatre of the College to a distinguished audience, Prof. Eiselsberg said :—

It is a special pleasure for me to see among my friends here Sir William Watson Cheyne who three years ago was the first recipient of the Lister Medal. I feel that my contribution to science has not been worthy of so great an honour and I presume that this distinction is intended to do honour to my great master Billroth. It was my privilege to be his assistant for nearly ten years, and throughout my life he has been my ideal in private as well as in professional life. Billroth worked on the problem which Lister so ably solved; his theoretical conclusions differed somewhat from those of Lister, so that he may be excused from not having adopted immediately Lister's new methods. Nevertheless, from the very beginning he had the greatest respect for the great surgical reformer and sent some of his assistants to Lister's clinic to study the new method. I am to this day grateful to Billroth for his advice to spend one of my vacation periods on a visit to King's College Hospital, for it will always be one of the most prominent impressions of my career to have personally met and seen at work the man who is recognised as one of the greatest benefactors of the world.

Surgeons of 70 and more years ago were not less clever than to-day, but they had no anæsthetics and thought primarily of technical perfection and speed in operation. We hear of the famous French surgeon, Baron Larrey, who after the battle of Eylau did, in one day, more than 200 amputations of shattered limbs, the amputation of each requiring on the average less than one minute. At that time it was necessary for all surgeons to be able to acquire this facility and my teacher, Billroth, became more clever and speedy in operating than any one to-day could ever hope to be. He could complete the disarticulation of the arm from the shoulder in less than 30 seconds. But the speed of the operation was not sufficient to guarantee that the wound would heal. Nussbaum, until 1890 director of the Munich Surgical Clinic, deplored the fact that 80 per cent. of his cases developed hospital gangrene after operation. At the beginning of the nineteenth century in the Hôtel-Dieu, at Paris, 80 per cent. of all patients with amputations of the femur died from wound infection, and between 1862–72, after 671 amputations performed in different hospitals, more than one-third of the patients died of different infections. The change that has come over surgeons to-day compels us to think highly of Lister's work.

The Revolution in Surgery.

What made Lister the hero of the scientific world was his systematic and careful investigations on living animals and the exact observations in his clinic, combined with laboratory work in the new science of bacteriology. Like John Hunter he noticed the great contrast between the healing of subcutaneous and open fractures and he bore it constantly in mind. The danger of compound fractures was acutely felt even in the great clinics where the best surgeons were working, and yet Lister, working in probably the most unhygienic hospital of all, that of Glasgow, obtained the marvellous result that out of 12 compound

fractures of the lower extremity he was able to heal nine. To-day practically nothing remains of his original technique, but the principle upon which this technique was based still holds good. The reason why he did not find that antiseptics would cure all infection was that, though far in advance of his time, he could not know the power of resistance inherent in the human body nor foresee Robert Koch's great work on bacteriology. The human body differs completely from the artificial culture medium in the Petri dish.

The Need for Caution.

Since infection of wounds has been prevented, one disease after the other has been treated by surgery. Every year has brought us new operations, and there have been times when the enthusiasm of the surgeon has prompted him to attempt too much. We have learned, for instance, that resection of tuberculous joints in children should not be performed, or at least should only be performed so that the epiphyseal line is not injured and the growth of the limb impaired. We all know the unhappy consequences of complete extirpation of the thyroid gland, and if we are now able to control them it is altogether due to experimentation on animals. By such means it was proved that the loss of the gland may be mitigated by oral feeding, subcutaneous injection of the extract, or under certain conditions by transplantation. Now, since we know that before a man's blood can be transfused into another the blood should be grouped, so we must, before making such a transplantation, apply the necessary tests. And if the famous experiment of Alexis Carrel, who successfully transplanted a kidney or an extremity from one animal to another, should ever be tried on man, the same test must be made. From the clinic of my friend and pupil, Clairmont, at Zürich, the following has been reported :—

A patient lost a large piece of skin by an accident. The wound had to be covered by skin-flaps. The "blood-number" of the patient was No. II. Transplantation was performed from three donors, I., II., and IV. All skin-flaps from No. II. healed, some healed from No. IV., but none from No. I.

Lister's goal was to remove danger from open fractures. He attained this object, but he went further. He cut down on a subcutaneous fracture which could not be reduced by manipulation—the patella—and sutured it successfully. Since the advent of Rontgen rays surgeons have sutured subcutaneous fractures more and more frequently. In my large accident ward at Vienna we treat fractures, particularly of the lower extremity, only occasionally by open suture and more often by Codivilla Steinmann nail or Schönmann-Schmerz tongs with extension. The point of this tong is introduced through the periosteum into the bone. Before the days of Lister this procedure was a dangerous one, as is evident by the results obtained from the Malgaigne clamp for patella fractures 100 years ago.

My own opinion is that some surgeons use operative methods for the treatment of fractures, and in other cases, far too frequently. Every step forward in surgery may cost life, therefore before any such step is taken one should endeavour to check results by anatomical research, physiological considerations, and by animal experiments in order that this danger may be reduced to a minimum. Especially when the operation is performed on a case, not in itself dangerous, which could perhaps be treated in another way, it is always necessary to ask "would I perform this operation on my parents, my wife, my children ?" Are we allowed to experiment on living man ? The problem presents itself also in regard to the too many sample drugs which every doctor receives daily by post. Should these be tried on his patients ?

Both Lister and Billroth published unsuccessful as well as successful cases in order that other surgeons might profit by their experience. It is a pity that all surgeons do not do likewise. Lister said, "the best thing that can be done by a man for the propagation of the truth is the correction of the faults previously committed by him." I wish that all scientists and all politicians, and in fact all classes of men would follow this golden rule.

Discriminating Surgery.

The good results obtained by Lister led to operations which are not perhaps necessary or entirely justifiable. I myself seldom perform a gastropexy nor a nephropexy. I personally cannot believe that in the majority of cases this constitutional anomaly can be healed by a mechanical operation. The less dangerous gastric operations become, the more frequently exploratory laparotomy is performed; and when no pathological symptom is found some surgeons feel that something must be done with the stomach and decide to do a gastro-enterostomy. Such procedure prejudices the beneficial results of an operation which should be productive of the best results when undoubtedly indicated. The cure may be worse than the disease for postoperative jejunal ulcers are often the sequel. Indeed, one of my pupils, Pribram, wrote a paper called Gastro-enterostomy a Disease. The surgical removal of such an ulcer is one of the most difficult operations, and even then does not with certainty prevent the appearance of a new ulcer. As a result of its indiscriminate use, gastro-enterostomy, which at one time was the most popular of gastric operations, has in recent years lost much of its popularity.

In the last 25 years we performed in my clinic 1681 operations for ulcer :—

		Per cent.
Resection ..	1102, with 59 cases of death	= 5
Gastro-enterostomy	541, „ 30 „ „ „	= 5
Jejunostomy	39, „ 13 „ „ „	= 30

The high mortality after jejunostomy is accounted for by that fact that jejunostomy is only performed in cases where neither resection nor gastro-enterostomy is possible.

Social Standing of the Surgeon.

The progress of surgery last century completely changed the standing of the surgeon. One hundred years ago the surgeon was not much more than an itinerant barber; the physician, on the other hand, with his wig, staff in hand, attended the patients, made the diagnosis, and advised the operation, which was performed by this barber who also did the blood letting and rendered other menial service. If the operation was successful it was due to the foresight of the physician, but if it went wrong it was owing to the clumsiness of the barber. During the last 60 years the surgeon has had the same fundamental training as the physician, and gradually he has risen to the same social level; throughout his career Lister was very much concerned about raising the surgeon's position. Concomitantly with the rise of status of the surgeon came the rise in that of the nursing organisation. It is not a matter of chance that the teaching of nurses in England is of the highest order; it is due to early inculcation of the feeling of responsibility.

Antiseptics.

The great majority of operative wounds now heal without any complication. However, in some cases —all surgeons know that—complications will appear. The aseptic method is not sufficient, especially where it is necessary to operate in infected surroundings. The great war reawakened by necessity the interest in old as well as in new antiseptics, and the old antiseptic treatment of Lister was new-born.

A doctor who was completely misunderstood by his colleagues, an assistant in the gynæcological clinic in Vienna, Ignaz Philipp Semmelweis, recognised in 1850 that puerperal sepsis was due to unhygienic conditions caused by the failure of doctors and students to clean their hands thoroughly before examining their patients. He proposed washing in calcium chloride solution, but unfortunately his colleagues would not support him. Only many years after his death the truth of his teaching was recognised. There has often been a discussion whether Lister or Semmelweis was

the father of the modern treatment of wounds. This discussion is superfluous. Let us be happy that two men independently had this epoch-making idea. The principles put foward by Semmelweis were not accepted by his contemporaries, but those advanced by Lister gave a tremendous impetus to the study of antisepsis. It was only about 1888, more than 20 years after his own discovery, that Lister heard of the efforts of Semmelweis and was full of admiration for him.

An antiseptic which kills bacteria without injury to the body-tissue does not exist. But the study of and experiment with serum have shown great therapeutic possibilities. Perhaps some day we shall have a polyvalent serum, which can protect us against all pathogenic organisms. This would render all our present methods of asepsis unnecessary and would simplify to the last degree all our operative precaution. I will no longer dwell on such dreams.

The Problem of Cancer.—Euthanasia.

In my clinic there have been made in the last 25 years 376 resections of cancer of the stomach, and in 70 of these cases the patients died after operation, though I must state that this has sometimes been very radical. We have performed gastro-enterostomy in 417 cases with 58 deaths after operation, 95 jejunostomies with 42 deaths, and 294 exploratory laparotomies with 28 deaths. All these cases show us that patients consult the physician too late. The mortality of jejunostomy, which is the quickest and easiest operation, in my clinic is due to the fact that these operations are only done when obstruction occurs, making it inadvisable to perform radical resection or gastro-enterostomy. As the above will show, out of 1182 cases of cancer of the stomach which have been operated upon, resection could be done in only 376. These statistics indicate that since we have no better method at the present time our greatest hope is that we shall be able to teach the young physicians the necessity of the early diagnosis of cancer. When one considers that 18 per cent. of all cases died immediately after the radical operation, and 58 per cent. of the surviving 82 per cent. died from recurrence within the first year, it is absolutely clear that a new remedy is necessary to give us mastery over the disease. A cancer early recognised and early cut out is often radically healed.

Here comes the question: Shall I tell the patient that he is suffering from cancer? I think we cannot give a general rule. I personally follow the example given by Billroth, not to tell the patient directly that he is suffering from a cancer; but I never fail to tell the facts to some responsible member of his family.

In special cases it is necessary, of course, to tell the patient, not only that he requires an operation, but also the extent of the operation, and if the patient or his family refuse the operation it must not be performed, however definitely indicated. To-day, however, we have scarcely to mention that an operation is necessary, for patients demand them even against our advice. Particularly is this true in *cosmetic* operations.

Another question interesting to the medical man is whether under any circumstances he is justified in shortening the life of a patient suffering from an incurable and perhaps agonising illness. Setting aside all religious and worldly considerations and looking at the problem from an ethical standpoint alone, I may at once say that a doctor would never be justified in doing so. Diagnosis is not yet sufficiently exact.

The Story of Progress.

It is the experience of all surgeons engaged in abdominal surgery that sometimes a case presents itself which on exploratory laparotomy is inoperable and appears to be incurable. The operation wound is closed, the worst prognosis is given, and the patient gets well! What is to-day an incurable disease may to-morrow be curable. Galen long ago spoke of three especially painful and incurable diseases: neuralgia of the trigeminus, ulcer of the stomach, and stone of the bladder. All these are now curable.

Generations come and go. Only the work performed remains. Before medical science had reached its present high level an immense amount of plodding research had to be gone through, untold nights spent in watchful medication, numberless sacrifices of pleasure and indulgence made. Of all this how little remains alive in the memory of posterity! The world knows nothing of the silent performances of duty which the working of our everyday life demands by day and night. The general country doctor, the medical practitioner in the town, have one and all their special sphere of action. They go through life and the noisy world does not heed them. But all these thousands of springs feed the life of the one man, who is destined to be the leader of a new era.

PRESENTATION OF THE MEDAL.

Sir Berkeley Moynihan, in presenting the Lister Medal, referred to the Vienna Surgical School as "the intellectual home of many of us before the war." Prof. Eiselsberg would be the first to feel glad that in paying a tribute to himself they were also paying tribute to Billroth. Something of the spirit of a teacher passed on from generation to generation. Billroth had trained eight occupants of chairs of surgery in Europe, and so far Prof. Eiselsberg had himself trained three; Sir Berkeley Moynihan hoped that in the years to come he would equal the record of his master. But it was not only as a distinguished contributor to surgical science and as a teacher that Prof. Eiselsberg deserved the honour being paid to him; he had done something more; he had raised the standard of conduct in his school and elsewhere. Not only a great practitioner and a great teacher, he was also a great example to all who practised the art of surgery, and it was fitting to associate his name with that of Lister by placing it upon the roll of those to whom the Medal had been awarded.

BRITISH EMPIRE CANCER CAMPAIGN.

ANNUAL REPORT.

THE British Empire Cancer Campaign is now well in its stride. The imposing format of its fourth annual report, presented at a meeting held at the House of Lords on July 11th, is more than justified by the wide range of the activities recorded. The objects of the campaign are clearly defined. Apart from the ultimate ideal of discovering the cause of cancer and the means of curing or preventing it, the secondary aims to which efforts are being directed are—

(1) The maintenance of existing cancer research centres at their maximum efficiency by financial assistance.

(2) The encouragement and establishment of new cancer research centres in association with universities and medical schools and the development of new schemes of cancer research.

(3) The financial support of individual cancer research workers under approved conditions.

(4) The coördination of cancer research generally.

The total amount of money expended on research, including commitments, now exceeds £125,000.

The Plan of Campaign.

Special centres of research have already been established in connexion with the Universities of Leeds and Birmingham, and negotiations for the granting of subsidies to corresponding schemes in Manchester and Liverpool are being carried on. Affiliation of the newly formed National Cancer Campaign for Ireland and of the independent movement started in the University of Sydney to the British Empire Campaign has been arranged. The publication monthly of the *Cancer Review*, wherein the enormous world literature relating

to cancer is abstracted, also serves to enable workers in different countries to keep in touch with progress made and to save their time, since they need refer to the originals only of those papers which are directly relevant to their own work.

The detailed work of organisation of the Campaign is largely entrusted to seven committees—notably the Scientific Advisory, Executive, Preliminary Inquiry, Intelligence, Management of the Journal, Radiology, and Finance Committees. In submitting the record of the year's progress the Council explains that these committees assume no scientific responsibility for statements of fact and opinion contained in the reports, compiled by the institutions and individuals in receipt of grants, which form the bulk of the annual report. The institutions subsidised include the Cancer Hospital Research Institute, the Cancer Research Departments at the Middlesex Hospital, St. Bartholomew's Hospital, St. Mark's Hospital and the Christie Hospital, Manchester, the Medical Research Council Radon Centre at the Middlesex Hospital, the London Association of the Medical Women's Federation, the Tropical Disease Prevention Association, the Westminster Hospital, the Coombe Lying-in Hospital (Dublin), and the Birmingham University Cancer Research Centre. Other grants have been made in connexion with radium research and whole- or part-time grants have been made to 12 individual workers. Many of the observations here recorded have been published in full in our columns, notably those of Dr. T. Lumsden, Prof. S. Russ and Miss G. Scott, Dr. J. C. Mottram and Dr. R. D. McKenzie, and Mr. C. F. W. Illingworth; we select for notice here some of the hitherto unpublished indications of the progress of work.

Tumour Therapy; Colloidal Lead.

As the outcome of a visit paid to Liverpool in October, 1926, by six delegates from the Campaign, it was decided that there was a good prima facie case for the continuance and extension of the work initiated there by Prof. Blair Bell on lead in the treatment of cancer. Arrangements are now in train for assistance to be given to the Liverpool organisation in raising further funds for their researches when this becomes necessary, and a grant has been made to St. Bartholomew's Hospital Medical College to enable further independent researches to be carried out on similar lines; the treatment is also being studied at the Christie Hospital in Manchester.

At the Cancer Hospital Research Institute, in autopsies on eight cancer patients who died during treatment by colloidal lead preparations no evidence was found suggesting any destructive change in the cancerous tissue or any arrest of the process, but some normal vital organs had suffered damage. The kidneys always showed extensive tubular degeneration, the liver commonly showed focal necrosis with advanced fatty change; in some cases cerebral œdema and thrombosis of the vessels of kidney and liver were observed. These observations and the results of lead treatment will doubtless be published in due course.

In Birmingham an inquiry, chemical, experimental, and clinical, into the value of colloidal lead compounds in the treatment of cancer is being pursued. The material received for testing proved to be too toxic for safe use; Mr. Saunders, M.Sc., a research chemist, was appointed to assist in the work and is preparing colloidal compounds of lead which are less toxic and may prove more stable. Clinical work, suspended until a satisfactory form of the drug should be discovered, is being recommenced.

Various alleged remedies, such as substances containing tartar emetic and violet extract, have been tested out at the Middlesex Hospital with negative results as far as specific action on tumour growths is concerned; some of these possessed a powerful local caustic effect. At present a number of chemical substances, including different preparations of lead, are being tested for toxicity and curative properties.

Rous Chicken Sarcoma.

Much work has been stimulated by the researches of Gye and Barnard on the Rous sarcoma. At the Middlesex Hospital Dr. S. L. Baker has confirmed Gye's experimental facts in that an activating effect has been obtained from broth cultures of the mammalian tumour (Jensen's rat sarcoma); it has not been possible to obtain activation with more remote subcultures from such broth. This research, while supporting much of the experimental work of Gye, and particularly that part played by accessory factors, has not afforded any conclusive evidence that the activating agent obtained from the mammalian tumour is a living virus. Workers at the Cancer Hospital say that such evidence as they have does not support the virus theory. Extending the work done by him jointly with Dr. McKenzie, Mr. Illingworth with Dr. Alexander found that neither of the factors postulated by Gye was able to withstand exposure to ultra-violet rays.

Workers at the Middlesex Hospital, testing quantitatively the lethal effect of ultra-violet light on the infective agent, found that the Rous agent is about five times as resistant as ordinary bacteria. The discovery at this hospital that the addition of a ferment (trypsin) and also the alteration of hydrogen-ion concentration has a marked effect on the virulence of the sarcoma filtrate is regarded as a most important development, which may have a wide application to the pathology of tumours. It is possible by adjusting these factors either greatly to increase or completely to inhibit the development of the fowl sarcoma.

Sero-diagnosis of Cancer.

Prof. E. C. Dodds and Mr. W. Lawson find that the Interferometer method is entirely unsatisfactory as a method of diagnosing carcinoma. At Cambridge Dr. G. S. Haynes has not obtained uniform results with this apparatus—in some cases striking success having been achieved, in others a complete lack of correlation. The possibility of the development of some serological test for cancer of the bowel has been one of the principal lines of investigation at St. Mark's Hospital. At Westminster Hospital experiments aiming at the evolution of a complement-fixation test for cancer were abandoned only after considerable trial; attempts to confirm Shaw-Mackenzie's test led to the conclusion that since a positive result can so often be obtained in conditions other than cancer, this test is valueless as a specific reaction for malignant disease. Attempts are being made by Mr. F. C. Pybus at Newcastle to use the method of complement fixation among others in the further investigation of the possibility of producing an immune serum against malignant cells.

Radiological Investigations.

The dosage of X rays or radium which is necessary to prevent the growth of tumours is one of the subjects of experimental study at the Middlesex Hospital, also the reaction to irradiation of the blood and of normal tissues surrounding the growth, and the nature of the immunity produced by inoculation of small quantities of X rayed tumour. A new installation for the production of X rays of short wave length will, when preliminary physical measurements and animal experiments have been undertaken, be used for research into the changes produced by X rays in the function and structure of both normal and cancerous tissues. At the Cancer Hospital complete blood counts made in 222 cases of malignant disease under deep X ray treatment revealed no striking abnormality due to the radiations. Similar negative results are reported from the Coombe Lying-in Hospital, Dublin. At the Radiological Cancer Research Department at St. Bartholomew's Hospital 59 patients were treated during 1926, 49 in 1925. The tentative conclusions drawn from this material as to the early results of deep X ray therapy are that there is a considerable difference in the response of malignant disease in different regions to X ray treatment. Whereas in malignant disease of the uterus the response is decidedly encouraging, in the breast group it is only slightly less so, while œsophageal and rectal cases give unsatisfactory results. In the upper air passage group it is noteworthy that while of 37 cases treated in the two years 29 were microscopically squamous-celled carcinoma; of the six cases reported free from signs of the disease only one was a squamous carcinoma. From Birmingham a corresponding group difference is recorded in connexion with radium, mouth cancer responding well and rectal cases badly to treatment.

The London Association of the Medical Women's Federation report that 117 cases of uterine cancer treated by radium have been given a dose of approximately 7000 m.e.h. within three weeks. No mortality was directly due to the treatment. Many of the cases were very septic before treatment and in eight there was pyometra; with the preparatory technique now used the treatment is only rarely associated with rise of temperature. Great benefit is said to have resulted even to quite hopeless cases.

Dr. Malcolm Donaldson describes the method whereby a cinematographic study of the behaviour of embryonic cells and of cells from malignant tissues grown in vitro has been prepared by Dr. R. G. Canti. This apparatus will be used to study the laws governing the disappearance of malignant growth under the influence of beta and gamma radiation; the effect of beta radiation on the cells is markedly to inhibit the cell movements. On the clinical side Dr. Donaldson reports that 50 mg. of radium element used over a long period has been the technique employed by him; he

believes that in the future even more prolonged doses will be used, especially in those tumours, such as carcinoma of the vulva, where the resistance to irradiation seems to be very great.

Conclusion.

The Council may justly claim that the impetus given to research work into the causation and treatment of cancer continues to gather weight. More and more workers are coming forward, and the results already recorded are being subjected to searching criticism. In certain directions observations are being extended and amplified in laboratories other than those in which they originated. This careful following up of clues or hopeful suggestions involves considerable expense. The funds are being administered with the utmost economy consistent with exploring every possible avenue of approach to the cancer problem, but the expenses are necessarily heavy. The Council work on the principle that no claim to have discovered anything important that may have a bearing on the cure or prevention of cancer is to be turned down without careful investigation; that no appeal for assistance is refused without consideration by those most competent to judge of the possible value of the work contemplated, and that support is given to any research that seems likely to have a bearing on cancer. At the same time money is not wasted in the subsidy of researches which have already been proved useless, and undue overlapping of allied investigations is discouraged unless cumulative evidence on any point is desired. For these reasons, being confident that the Fund is distributing the money at its disposal in a wise manner, we cordially support its appeal for further munition for the active prosecution of this greatest of all wars.

MEDICINE AND THE LAW.

Professional Secrecy and Venereal Disease Clinics.

IN the discussion which followed the delivery of Lord Riddell's address on "The Law and Ethics of Medical Confidences" before the Medico-Legal Society on June 23rd, mention was made of the special obligation of secrecy imposed by regulations under the Public Health Acts upon all concerned in the conduct of venereal disease clinics. This special obligation is to be found in Article II. of the Public Health (Venereal Diseases) Regulations of July 12th, 1916. After directing county councils and county borough councils to prepare and submit schemes for venereal disease treatment at local hospitals and other institutions, and for the supply of salvarsan and other remedies to medical practitioners, Article II. continues: "All information obtained in regard to any person treated under a scheme approved in pursuance of this Article shall be regarded as confidential." It might be possible to suggest—as is suggested by Lord Riddell in a letter published in another column—that this special statutory duty of secrecy would override the judicial power to compel a medical witness to disclose confidential matters affecting his patient. On the other hand, the wording of the article is drafted rather as a general instruction than as an absolute prohibition of disclosure; no penal consequences are laid down for violation of this particular regulation or any other of this set of regulations. It is as though the Local Government Board, when issuing its administrative orders in 1916, desired to establish the essential atmosphere of confidence, but did not contemplate the necessity of penal enforcement. It is unlikely that a judge would allow a medical witness to rely upon Article II. as imposing a statutory duty of silence in the witness-box. Indeed, there has already been a judicial ruling upon the point. In the divorce case of Garner *v.* Garner (reported in the *Times* of Jan. 14th, 1920) a medical witness drew the judge's attention to this passage in the Venereal Diseases Regulations, but the judge ruled that the witness was nevertheless bound in law to answer the questions addressed to him. This case was, however, peculiar in that the doctor was called to give evidence on behalf of the patient and at her own request. Professional secrecy being a one-sided duty owed by doctor to patient, the patient can at any time release the doctor from the duty. The relationship between solicitor and client provides a parallel here. The instructions given by client to solicitor are absolutely privileged; no court can compel the solicitor to disclose a single word of them. Yet if a litigant is challenged upon any matter which he can establish by the evidence of those instructions (for example, proof that he was making a particular claim at an early stage in the proceedings), the solicitor might be put into the witness-box to prove the point. The obligation of professional secrecy can be waived if disclosure is more advantageous to the client than secrecy. The lesson of Garner *v.* Garner, therefore, is that the duty of non-disclosure under the Venereal Diseases Regulations is not absolute; the situation is still governed by the old ideals of professional tradition. The position remains that the doctor is denied in a court of law the complete professional privilege which is allowed to the solicitor, but that he must do his best upon a proper occasion—by protest, appeal to the judge or any other legitimate means—to claim the utmost possible degree of privilege for the communications which have passed between his patient and himself. Courts of law might be reminded that the Royal Commission on Venereal Diseases recommended that treatment should be so organised that persons suffering from these diseases should not be deterred from taking advantage of the facilities provided. The Local Government Board circular which accompanied the issue of the regulations in 1916 rightly stated that it was essential for the success of any measures designed to deal with venereal diseases that patients should be fully assured as to the secrecy of the arrangements. Each patient attending for diagnosis or treatment, observed the memorandum of the Board's medical officer, should be assured that, though his home address will be kept confidentially for reference, it will never be communicated to others. Lord Trevethin's Committee of Inquiry into the Prevention of Venereal Disease in the Civil Community reported in 1923 that the present principle is, by maintaining secrecy, to encourage sufferers to come to treatment and to continue treatment, "and we think that in the present state of public opinion any system of general compulsory notification of venereal disease would tend to concealment and would prove a backward step."

The mention of compulsory notification leads to another reflection. If venereal diseases became compulsorily notifiable, an immense breach would have been deliberately made in the rampart of professional secrecy. The step would be so serious that it may confidently be assumed that the Ministry of Health would not make it by way of departmental regulations under the Public Health Acts, but would obtain the express direction of Parliament. And at this point it must not be forgotten that already Parliament has made venereal diseases notifiable to a limited extent locally. The Bradford Corporation Act of 1925 (15 & 16 Geo. 5, cxxi. s. 68) gave five years' trial to a clause making venereal disease an infectious disease within the Infectious Disease (Notification) Act of 1889 in the following circumstances—(*a*) in the case of infant patients under 2 years of age, and (*b*) in the case of a patient (not being a child) who, after being informed by any medical practitioner attending on or called in to visit him, or by the medical officer, that further treatment is necessary in order to effect a cure of such disease, refuses or neglects to undergo such further treatment. This provision was an attempt to deal with the "defaulting" patient, for whose "following-up" local arrangements (by using the services of nurses, almoners and others) have been devised with varying degrees of success. If legal proceedings

have to be taken under the Bradford Corporation Act, the confidence of the venereal disease patient is violated and the professional tradition is impaired afresh. It should perhaps be noted that the obligation of secrecy is not confined to the medical practitioner alone. It extends to, and is honourably accepted by, others—students, nurses, and the officials of local authorities. The organisation of venereal disease clinics widened the obligation of non-disclosure; this circumstance in itself might justify and explain the reminder in Article II. of the Regulations of 1916.

Probate Action by the London Hospital.

The governors of the London Hospital had lately to bring a probate action in circumstances in which they got no profit for themselves but were (in the language of the President of the Probate and Divorce Court) performing a public duty. A lady died on April 24th, 1925, aged 42, leaving about £2200. By a will executed in 1914 she had made the governors of the London Hospital her residuary legatees, but this will could not be found. Mention was made during the action of three other wills alleged to have been subsequently made by her—one of Oct. 17th, 1921, another of April 16th, 1925, and a third of April 21st, 1925. Under this last alleged will, purporting to have been made three days before her death, a Mr. Martin Harcourt Waters, residing at Salisbury and engaged to some extent in estate management, was appointed sole executor. Mr. Waters had been well acquainted with the testatrix for many years, certainly from 1921 to 1925; on her death he proceeded to obtain probate of the alleged final will of April 21st, 1925. But, according to the findings of the President, the signatures of the witnesses to the document were not written by the persons whose names appeared thereon; they strongly resembled the writing in the body of the document. The signature of the alleged testatrix might have been hers or not; if not it was a carefully prepared imitation. The testatrix had become a drug addict. Medical evidence was given that she suffered from chronic Bright's disease and from injections of morphia for many years. She was comatose and moribund in the spring of 1925 and incapable of carrying out any testamentary act or of understanding its purport. The London Hospital put forward the will of 1914 as a valid and subsisting will at the time of the lady's death; they asked the court to revoke the probate which had been granted in respect of the supposed will of April 21st, 1925, and to pronounce for the lost will of 1914. They said the will of April 21st, 1925 (under which Mr. Waters became sole executor and beneficiary), was not duly executed; that the lady did not know or approve of its contents, and that she was not of sound mind at the time it was executed. Mr. Waters put in a defence, but apparently did not appear at the trial of the action, and was not represented. He said the 1914 will was revoked by the will of 1921, which in turn was revoked by the will of April 16th, 1925, itself revoked by the final will made five days later. The President pronounced against all the three wills set up by Mr. Waters, but felt unable to pronounce in favour of the 1914 will since there was a good deal of evidence of revocation of that will by subsequent testamentary acts. The upshot of these findings was, it seems, that the lady was held to have died intestate. In effect the London Hospital had charged Mr. Waters with fraud. On this issue the President found it unnecessary to pronounce, but he found against Mr. Waters with costs, and ordered the papers to be sent to the Public Prosecutor. The London Hospital came forward in this matter not because it expected to recover anything (indeed its counsel remarked that it was doubtful if there was any money left to be recovered), but out of a sense of duty to expose certain remarkable facts. Lord Merrivale, as already stated, complimented the hospital upon its public-spirited action.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Suicide in Germany.

THE belief that suicide has increased in frequency since the war is apparently mistaken. According to a recent statistical record the number of suicides per 100,000 persons was as follows:—

1888–90 ..	20·6	1911–13 ..	21·8	1920 ..	21·7
1891–1900 ..	21·4	1914 ..	20·9	1925 ..	21·5
1901–10 ..	22·4	1915–19 ..	16·9		

Apart from war-time, when for obvious reasons there was a decrease, the average number of suicides has been about the same for nearly 40 years. Generally the incidence is greater in towns than in the country. In the Rhenish provinces—Westphalia, Upper Silesia, and Bavaria—where Roman Catholics predominate, the number of suicides is only a third of the number in Berlin, Hamburg, and Saxony. It is a very striking fact that the percentage among women has considerably increased; whereas in 1890 only 26·3 per cent. of suicides were committed by women the percentage had increased by 1924 to 48·6. Forty per cent. are ascribed to mental troubles, only 7 per cent. to economic causes, and 33 per cent. to grief, whilst in 20 per cent. the cause is regarded as unknown. In 1924 as many as 104 children under 15 years committed suicide in Germany. Of other countries France, Switzerland, Japan, Austria, and Hungary have about the same suicide-rate as Germany, but in Denmark and Sweden it is less by one-third, whilst in the United States, England, Belgium, Norway, and Spain it is less by one-half. In Italy and Holland the number of suicides per 100,000 is only one-third of that in Germany, and it is said that the lowest figures are recorded from Bulgaria and Ireland.

An Unusual Crime.

A trial unique in the history of the medical profession lately took place before a criminal court in Cologne, where a medical man was prosecuted for murdering a patient with whose wife he had had illicit intercourse. The facts as stated were very peculiar. The victim, an architect, had suffered from heart disease, and was attended at home by the accused. His state by and by became worse, and the doctor had him conveyed to a hospital where he had been an assistant physician before settling down as a medical practitioner. Here he was able to see the patient frequently, with the consent of the hospital staff. At the trial it was alleged that the accused had told the patient that he was suffering not only from heart disease, but also from syphilis, and had recommended him not to inform the hospital physician of that fact, as he would himself cure him of the disease by injections given without their knowledge. To this the patient agreed, being unwilling, out of shame, to reveal his condition. When he went to hospital his condition at first improved, but after a few days he got worse and suddenly he died with gross albuminuria, hæmorrhage from the bowels, and general collapse. At the post-mortem it was discovered that death was due to mercury poisoning. The peculiar behaviour of the accused led to suspicion that he had caused the illness, for when the result of the autopsy was made known he fled to Amsterdam with the wife of the deceased. They were discovered there by the police before they could escape to the Dutch colonies, as had been their intention, and were brought to trial at Cologne. At the trial it was stated in evidence that the doctor had frequently given injections to the patient without the knowledge of the hospital physician. He had insisted that the patient should have a room of his own in the hospital, although he was scarcely in a position to pay for it. Death had occurred after an injection of novasurol, a strong mercurial preparation, of which he had given ten times the usual dose. The accused, however, pleaded not guilty; he denied that there had been any adultery

and counsel pointed out that if his client had wanted to kill the patient he could easily have done it at his home, instead of having had him conveyed to hospital for the purpose. The public prosecutor claimed that the doctor had been induced to commit the crime by the patient's wife, and that the two were equally responsible. After a trial lasting three days the jury brought in a verdict of Guilty and both the medical man and the wife were sentenced to death.

Patent Medicines.

The President of the Apothecaries Association lately stated in the *Deutsche Medizinische Wochenschrift* that the list of patent medicines in tablet form kept by the Association includes not less than 20,000 preparations, and there are about 5000 more which are not to be found in the list. A chemist of Freiburg University has undertaken to examine the composition of the patent medicines and has ascertained after 5000 tests that large numbers of the compounds are practically identical. Often the name of the drug alone was changed. The need for legislation in this matter has been recognised, and in an official statement on behalf of the Government it is stated that at present no control is exercised over the quality and uniform composition of patent medicines, the only safeguard being the reputation of the manufacturer. The existence of too many of these preparations, it is remarked, encourages the profession to more schematic treatment, induces the public to cure themselves instead of consulting a medical man, and facilitates secret and illegal traffic in drugs. A new Bill will provide for control of the production of patent medicines within the chemical works and for the issue of licences to import such compounds from abroad.

Synthalin.

Before the Society for Internal Medicine Prof. Umber, of the West End Hospital, recently read a paper on his results in the treatment of 200 cases of diabetes by synthalin. His experience showed that synthalin is not useful in coma, that undesirable complications occur rather frequently, and that administration of the remedy has therefore to be interrupted from time to time. With synthalin the amount of sugar is reduced in the urine, but not in the blood; tolerance to carbohydrates is increased. Prof. Umber recommends that the drug should be given every other day, together with insulin. The quantity of insulin is gradually reduced and eventually synthalin alone is used. Insulin, he considers, continues to be the remedy par excellence for diabetes.

Artificial Pneumothorax.

At a recent meeting of the Leipzic Medical Society Dr. Fischer reported the results obtained in the Leipzic Medical Clinic in the treatment of pulmonary tuberculosis by artificial pneumothorax. In 60 per cent. of the 119 cases treated the opposite lung was healthy, whilst in 40 per cent. it was slightly affected. In 22 cases infection spread to the other lung during treatment, which was accordingly interrupted. The results were that 30 per cent. were cured, 22 per cent. were improved, in 8 per cent. the condition was unaltered, 17 per cent. became worse, 19 per cent. died, and in 4 per cent. no informatian could be obtained. In 52 per cent. the patients were able to work again. The puncture method was exclusively used; the patients had to stay two or three days in hospital, after which the refills could be done in the out-patient department.

INDEX TO "THE LANCET," VOL. I., 1927.

THE Index and Title-page to Vol. I., 1927, which was completed with the issue of June 25th, is now in preparation. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

Correspondence.

"Audi alteram partem."

THE LABELLING OF EGGS.

To the Editor of THE LANCET.

SIR,—The Sale of Food Order, 1921 (Labelling of imported produce—Eggs), which is a remnant of "Dora," has been renewed each year by the Expiring Laws Act. Its administration falls upon the Public Health Departments, which also administer the Sale of Food and Drugs Acts throughout the country, and in view of the Committee of Enquiry which is at present considering the marking of eggs it may not be without interest to the many medical officer readers of THE LANCET to have a review of the situation as it has affected a large borough.

The Order provides that: "A person shall not sell or offer or expose for sale, whether by wholesale or retail, as fresh eggs or new laid eggs, or under any description of which the words 'fresh' or 'new laid' form part, any eggs which have been imported into the United Kingdom unless the description also includes the word 'imported' or word or words disclosing the country of origin."

It will be noted that it is no offence *under this Order* to label foreign eggs simply "English," omitting the words "fresh" or "new laid," and we have known this to be done. The provisions are by no means easy to administer owing to the difficulty of proof, and it would appear as if this Order, as far as it relates to eggs, has been found to be unworkable by most authorities. I say this with all due respect to those who have made some effort in endeavouring to have foreign eggs correctly labelled in their areas. As far as one can judge from cases reported in the public press, prosecutions regarding eggs under this Order are very few. I find on referring to our records in Islington that since the Sale of Food Order, 1921, has been in force 80 summonses to date have been taken out. Of these, only two were dismissed, and fines and costs amounting to £188 10*s.* 6*d.* were imposed.

Some interesting points have come out through the proceedings taken. Three of the cases were against wholesale dealers, as we refrained from taking action against the retailer who had been misled in his purchases. In another case, a purchase was made of eggs which were unticketed, but the inspector distinctly asked for "new laid eggs," and no mention was made of the fact that the eggs were imported. The defendant's manager and assistant, both at the time and in court, maintained that no offence had been committed as no written label had been used. With the remark that the defendant had been too clever, the magistrate convicted. In other cases, the word "Imported" has been written on the back of the label, or else in small letters at the foot so as to be concealed by the eggs.

In Islington this work, with the exception of two prosecutions, has been undertaken with other duties by one inspector only. In addition to these prosecutions there have been innumerable verbal warnings, and a great many letters written to offenders. It has been found that when a new tradesman moves into Islington, until he is warned he adopts the slack methods bordering on, if not actually wilfully deceptive which he has utilised, in the place he has come from, without check. We have thus forced upon us in Islington the practical futility of the provisions of this Order if they are not to be generally enforced on our borders.

Proof is, as I have stated, often a difficult matter, and has to be obtained by indirect means—e.g., the invoicing of the eggs to the retailer as imported, and the knowledge that these same imported eggs have been incorrectly described according to the provisions of the Order. Undoubtedly, not only are eggs misdescribed, but frequently foreign and home eggs are mixed. The difficulty surrounding identification of the foreign egg could be overcome if each foreign egg were required to be marked, before importation,

in some simple manner. This would prevent deception, or at least provide the means of identification if wrongly labelled, or if mixed with home produce. When one considers the number of warnings that have been issued in Islington and the number of successful prosecutions, one cannot conceive that the tradesmen in other places are more particular in carrying out the provisions of the Order. The effective remedy would appear to be, as I have said, an efficient but simple system of marking before importation. This would be simpler than the method of distinguishing home produce by marking which was advocated in a letter to the *Times* of Feb. 8th, 1926, from a Sussex writer.

In my opinion it is quite practicable to stamp eggs with a simple letter "I" for "Imported," or a small star, which would denote a foreign egg. I am sure our experience in Islington of the difficulties which surround the administration of this Order must have been experienced throughout the country, and it would be interesting to have the experiences of other medical officers of health. It seems useless to go on from year to year with this practically unworkable Order under the conditions which I show to exist.

I am, Sir, yours faithfully,

G. CLARK TROTTER, M.D., F.R.S. Edin.,
Medical Officer of Health, Metropolitan Borough of Islington.
Municipal Buildings, Upper-street, N., July 9th, 1927.

DIPHTHERIA IN LONDON.

To the Editor of THE LANCET.

SIR,—I have read Dr. Graham Forbes's letter with much interest. Since both of us have based our figures on the official returns of the Registrar-General, he and I are bound to be in agreement as to the facts. I am well acquainted with Dr. Forbes's valuable report, and my letter was not directed to anything there stated, but to the sentence in your leading article of June 11th, where you say: "his (Dr. Forbes's) figures show the incidence and mortality of diphtheria to be higher in London than in any other large city in Great Britain, and higher than that of almost any other European capital." This I consider does less than justice to the London of to-day. My letter proved that London and West Ham had the lowest diphtheria case death-rates during the past five quarters of any town in England with more than 300,000 inhabitants, and Dr. Forbes corroborates this finding.

It is quite true that an average of 15 years shows London to be in a low position, but such average does not give a correct, or even a fair indication of the treatment of diphtheria in London to-day, as is proved by the figures in the last table of Dr. Forbes's letter. No allowance for uncorrected returns can possibly, in my opinion, depose London from its high position on that table. With reference to the large foreign cities, I quoted only the figures for the first quarter of 1927 for the reason that the Registrar-General's returns do not give figures continuously during 1926 for all of the cities mentioned, and I had no means of procuring the missing figures except by worrying some official in the Registrar-General's office, which I was reluctant to do.

My sole interest in this matter lies in making it clear to the medical profession that the diphtheria situation in London to-day is not quite so black as you (no doubt unintentionally) painted it.

I am, Sir, yours faithfully,

London, W., July 9th, 1927. THOMAS MABEN.

*** Our readers now have before them the figures which will enable them to assess the degree of blackness for themselves.—ED. L.

MEDICAL CONFIDENCES.

To the Editor of THE LANCET.

SIR,—Since delivering my address to the Medico-Legal Society, published in THE LANCET of July 2nd (p. 4), my attention has been directed by Sir William Collins to the regulations regarding centres for the treatment of venereal disease. The Public Health (Venereal Diseases) Regulations, dated July 12th, 1916, issued by the Local Government Board, predecessor of the Ministry of Health, to local authorities contain the following instruction:—

Article II. (2). All information obtained in regard to any person treated under a scheme approved in pursuance of this Article shall be regarded as confidential.

A memorandum was also issued by the Local Government Board which contained the following statements:—

"It is essential that each patient attending for diagnosis or treatment should be assured that, although his home address will be kept confidentially for reference, it will never be communicated to others. The desirability of having the home address in order to be able to arrange subsequent appointments should be explained to the patient."

"At an early visit the patient's name and home address should be noted confidentially and kept separate from his clinical record. It should be explained to the patient that the home address will under no circumstances be used except for confidential communications to the patient himself respecting his treatment."

Obviously these provisions create special conditions regarding patients attending venereal disease clinics, and may impose legal obligations or secrecy upon the local authority and its medical and other servants. How the regulations would affect disclosure in the witness-box is doubtful. They purport to be made under statutory powers. Consequently, if the regulations were *intra vires* it might well be contended that statutory secrecy had been established. But however this may be the ethical position is plain, both for doctors and laymen engaged in work at such clinics.

I am, Sir, yours faithfully,

July 5th, 1927. RIDDELL.

SULPHUR METABOLISM.

To the Editor of THE LANCET.

SIR,—In a recent article (THE LANCET, June 18th, p. 1283) Dr. A. P. Cawadias suggests that in arthritis deformans there is a definite deficiency of thiopexy—i.e., an increased sulphur katabolism. It may be of some interest to your readers to compare his results with those obtained at the Devonshire Hospital, Buxton, with various rheumatoid conditions. 42 cases gave the following results:—

Total nitrogen / Total sulphur ratio.	Cases.	Total nitrogen / Total sulphur ratio.	Cases.
7·6–10·0	4	17·6–20·0	2
10·1–12·5	6	20·1–22·5	0
12·6–15·0	24	22·6–25·0	1
15·1–17·5	4		

My figures for normals vary from 11·5–15, values that accord with those found by other workers and with the figure given by Dr. Cawadias in the second paragraph of his article. In his own experiments Dr. Cawadias obtained TN/TS ratios in controls of from 1 : 7 up to 1 : 10, which suggest that either the diet used was abnormally rich in sulphur or that the Salkowski method of estimating total sulphur in urine gives higher results than the Folin process with Benedict's oxidising reagent.

I am inclined to the opinion that there is more in Dr. Cawadias's original suggestion regarding deficient oxidation than in his latter one as to excessive sulphur katabolism. If, as Folin has suggested, the neutral sulphur of the urine is endogenous in origin and is fairly constant in amount, it is necessary to consider the excretion of this moiety in terms of grammes per diem and not as a percentage of the total sulphur unless the latter is maintained at a constant value. My figures for the neutral sulphur in the urine of the same 42 cases are:—

Neutral sulphur as SO_3. Grammes per diem.	Cases.	Neutral sulphur as SO_3. Grammes per diem.	Cases.
Under 0·10	4	0·41–0·50	3
0·11–0·20	8	0·51–0·60	1
0·21–0·30	11	0·61–0·70	0
0·31–0·40	14	0·71–0·80	1

If the maximum value for normals is taken as 0·30 g. per diem the above figures indicate that

rheumatoids show a tendency towards deficient oxidation, but more proof is desirable as to the amount of neutral sulphur excreted by normals. In this respect, as with many other aspects of the rheumatoid problem, the difficulty lies in obtaining controls that are really comparable as regards age. The recent work at Ancoats showed that glucose tolerance decreased with increased age, and it is not improbable that other functions may be effected in a similar manner. As most of the controls used in work on neutral sulphur excretion are young students, deductions made from a comparison of such normals with the figures given by a much later age-group should be extremely guarded.

In view of the importance of sulphur metabolism it is certainly desirable that further work should be done on this problem.—I am, Sir, yours faithfully,

JOSEPH RACE,
Biochemist to the Devonshire Hospital.

Buxton, July 1st, 1927.

COLOUR TESTS FOR VITAMIN A.

To the Editor of THE LANCET.

SIR,—In an admirable paper under the above title in your issue of July 2nd Mr. S. G. Willimott and Mr. F. Wokes mention my observations on the destruction of vitamin A in cod-liver oil under the influence of sunlight and other sources of actinic rays, with the comment that no details were given of the period of exposure or of the distance from the mercury-vapour lamp. The omission of such data was not due to oversight on my part, but rather to the difficulty of expressing doses of artificial light in intelligible terms.

Since the question has been raised I may perhaps be allowed to draw attention to some points of importance in expressing dosage, and at the same time to supply the data which apply to the lamp I used in my experiments. In the absence of international units for comparing the output of arc lamps, simple statements of time and distance such as Messrs. Willimott and Wokes make in their paper, while they may be adequate for their own notes, give no accurate idea to other workers of the dose or range of light employed, since they refer only to two out of a number of variable factors. The following data apply to the destruction of vitamin A in a well-known brand of cod-liver oil under a Cowper Hewitt mercury-vapour lamp, taking a steady current from a bank of accumulators.

The oil is sealed in 10 cm. lengths of glass quill tubing of 7 mm. bore and 0·5 mm. wall thickness, one tube being filled as completely as possible. The glass of the tubes transmits the whole of the visible spectrum and the near U.V. to 3200 A.U. The tube is irradiated vertically beneath and parallel to the long axis of the mercury-vapour lamp, and at a distance of 10 cm. The exposure is started when the lamp has reached a steady output as registered by an ammeter in series and voltmeter in parallel with lamp. Control tubes of oil covered with black paper are kept: (1) at 10 cm. from the lamp; (2) at room temperature during the exposure.

Under the above conditions, with the lamp consuming 375 watts after an exposure of three-quarters of an hour, the oil gives a doubtful reaction and, after one hour, a definitely negative reaction with $AsCl_3$. Both control tubes show a strong positive reaction at the end of the exposure.

It would not be surprising if under similar conditions as regards power-consumption, time, and distance of exposure, &c., other lamps gave different results, but it would be interesting to know how such results compare with those of other laboratories. The observation of Messrs. Willimott and Wokes that the destruction of the vitamin continues after the oil has been removed from the source of light is important and is, as they say, a strong argument in favour of keeping the oil in the dark until the time of use.

The possibility of the production in cod-liver oil of some substance antagonistic to vitamin A is suggested by the above observation and is supported by some experiments I made last summer to test this point.

A series of dilutions of normal cod-liver oil in "deluminated" oil from the same source were made and tested at once with $AsCl_3$. A 20 per cent. dilution of normal oil gave a strong positive reaction, a 10 per cent. dilution was faintly positive, and a 5 per cent. dilution was negative. Twenty-four hours later the 20 per cent. dilution gave a reaction similar to the 10 per cent. freshly prepared dilution, but, after a further 24 hours, I failed to detect any further destruction of vitamin A.

Even a freshly prepared dilution of normal in deluminated oil did not give as good a reaction as the same dilution in an inert medium such as liquid paraffin. I am, Sir, yours faithfully,

Middlesex Hospital, W., July 12th. P. R. PEACOCK.

"TENNIS LEG."

To the Editor of THE LANCET.

SIR,—The treatment by massage and early movement, referred to in your annotation last week, was advocated and carried out by Wharton Hood. His little book entitled "Treatment of Injuries by Friction and Movement," which is, I believe, out of print, gave a clear account of the accident and its treatment. I have carried it out with absolute success for 20 years, the last case being a rather severe muscle-fibre tear in my own calf through jumping out of a dog-cart on to a very rough road. My practice is to rest the leg for 48 hours, then to lay overlapping strips of strapping from below the swelling and tender point to above its upper margin, and get the patient to walk, or rather hobble, about. There will be pain, of course, but this diminishes day by day if an honest attempt is made to walk and massage given over the strapping. As the strapping gets loose it should be replaced, and if well soaked with petrol will come away painlessly (and hairlessly). In my own case I was walking well but cautiously in a fortnight and was practically normal in three weeks after the injury.

I am, Sir, yours faithfully,

July 12th, 1927. G. P. JAMES.

QUININE AND CHINOSOL SUPPOSITORIES.

To the Editor of THE LANCET.

SIR,—In your issue of July 2nd the Medical Research Committee of the Society for Constructive Birth Control recommends a contraceptive suppository of chinosol. Chinosol has been widely used for this purpose for some years in Germany, England, and the United States, but the results, on the whole, have been even less satisfactory than those obtained with quinine. A considerable number of women are unable to tolerate chinosol in any medium, or in any concentration which is sufficient to act as a reliable contraceptive, and its use is frequently followed by inflammation and discharge. I have seen many such cases in my own practice, and many more were reported to me by German and American colleagues.

I saw a New York surgeon perform an artificial insemination (unhappily unsuccessful) on a doctor's wife who was suffering from cervicitis and sterility, which he attributed to the use of chinosol. She had been under his care for many years and he had attended her in her previous confinements. He was convinced that she had become sterile as a result of using a well-known chinosol jelly. He gives birth-control advice to his patients when they ask for it, so he cannot be suspected of any hostility to contraception in general. The medical officer of a large birth-control clinic in New York also told me that she had seen inflammation and discharge following the use of chinosol in a large number of cases.

There is a good deal of evidence accumulating that almost all the chemicals usually employed for contraceptive purposes tend to cause discharges and inflammation, and I believe that this is because they destroy, or at least weaken, Döderlein's bacillus, which is a normal inhabitant of the vagina, and which acts as a defensive army against the onslaughts of pathogenic organisms. Döderlein's bacillus, being a lactic-acid-producing bacillus, is unharmed by the presence of

lactic acid in a strength of 1 per cent., which is sufficient to kill spermatozoa if they are brought in contact with it.

Dr. W. Carey, visiting gynæcologist at Brooklyn Hospital, N.Y., and myself began, independently of one another, to use a lactic-acid jelly some six years ago and both of us have found it most efficient if used in conjunction with an occlusive pessary. In addition several hundred doctors to whom I have recommended it inform me that they have found it reliable and harmless. In my own practice I have advised its use to several thousand patients, and so far no harmful results have been reported to me. Five patients have complained that it caused a smarting sensation, and in all these cases I have found that there was *previously* a hyperæsthesia which had at times caused dyspareunia. In these cases I recommended chinosol or boracic instead of lactic acid. Apart from these five women, who complained of temporary discomfort, no harmful or even disagreeable results have been reported to me even by patients who have used it regularly for as much as five years.

I am, Sir, yours faithfully,

Harley-street, W., July 5th, 1927. NORMAN HAIRE.

NOMENCLATURE OF ENCEPHALITIS.

To the Editor of THE LANCET.

SIR,—May I ask for the hospitality of your columns to advocate a desirable change of nomenclature? At present it is usual to classify cases with symptoms of organic nervous disease following (or presumably following) acute encephalitis lethargica as cases of *post-encephalitis*, or *sequelæ of encephalitis*. These cases should be more correctly designated *chronic encephalitis* both on clinical and pathological grounds; and as from the beginning of this year, this nomenclature has been introduced into the register of cases at this hospital.

Clinically we know that the condition is usually a slowly progressive one, and a histological examination of the appropriate region post mortem always shows evidence of a recent active inflammatory process as opposed to simple healed lesions. The following clinical note is relevant:—

Yesterday a boy of 14 years was admitted into the hospital complaining of somnolence and pain in the right shoulder for one week. Prior to this he had always enjoyed perfect health and an exemplary character. During the last week his character has undergone a complete change. He has become moody and "difficult" and has been guilty of petty pilfering (such as stealing cherries from a shop-front) on three occasions. He is, I believe, suffering from acute encephalitis, in the modified form which is now becoming familiar, but at the same time he is showing from the onset a "characterological" change of the type which is usually called "post-encephalitic."

It is possible that there are cases which show undeniable evidence of the morbid process having undergone complete arrest, and such patients might appropriately be said to be suffering from the sequelæ of encephalitis, but the term should be reserved for these cases only. Incidentally there is a type of case which can be admirably designated *subacute* encephalitis lethargica (or epidemic encephalitis).

I am, Sir, yours faithfully,

E. B. STRAUSS,
Senior Medical Registrar, Hospital for Epilepsy and Paralysis.

Maida Vale, London, W., July 5th, 1927.

ILFORD EMERGENCY HOSPITAL.—Lady Patricia Ramsay has opened the war memorial children's wing of this hospital. It is hoped that the two acres of land surrounding the hospital will be utilised as a memorial garden available for special occasions.

THE LATE DR. F. K. RIDER.—Dr. Frederick Kirke Rider, of Leeds, who died on July 4th at the age of 62, was a well-known practitioner in East Leeds, and until his retirement from practice a few years ago was a member of the Leeds Panel Committee. A student at the medical school of Leeds, he qualified L.S.A. in 1892, later becoming L.M.S.S.A. He was a pioneer in both cycling and motoring in Leeds. He leaves a widow, two sons, and two daughters.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

A GROUP OF HEALTH RESORTS.

THE following are some of the statistics of six health resorts for 1926:—

Name of district and mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Diarrhœa under 2 years	Infant mortality.	Maternal mort. from childbirth.
Torquay .. .. (36,990)	13·7	14·4	1·40	1·73	2·2	2·9	4·0	63	6·0
Tunbridge Wells (34,430)	13·3	13·6	0·84	2·30	1·7	2·2	4·4	61	2·2
Ramsgate .. .. (30,270)	16·5	13·1	0·99	1·75	1·3	1·9	11·9	72	6·0
Margate .. .. (27,950)	14·4	11·0	0·86	1·36	0·8	1·6	7·4	45	7·4
Lytham St. Anne's (23,910)	10·9	13·7	0·83	2·13	1·2	1·9	11·4	57	15·0
Bognor .. .. (14,020)	12·0	9·3	0·43	1·42	1·2	1·8	0·0	41	0·0

In the above table the death-rates from causes such as cancer and heart disease are high because the aged and infirm go to live in health resorts for their climatic and other advantages. This does not apply so generally in the case of tuberculosis, owing to the use of sanatoriums. The environment which is good for the invalids should be productive of low infant mortality-rates and low maternal death-rates among the more permanent resident populations.

The hours of bright sunshine recorded in 1926 showed a considerable range. They were: Torquay, 1699; Ramsgate, 1681; Margate, 1653; Bognor, 1639; Tunbridge Wells, 1458; and Lytham St. Anne's, 1211.

Torquay.

Dr. Thomas Dunlop recounts the physical and climatic advantages of this borough, and mentions that the population more than doubles itself during the season. The up-to-date medical baths are claimed to be equal to anything at home or abroad. The sunshine (1699·5 hours in a poor year like 1926) and the possibility of open-air life make Torquay a good place for children. Dr. Dunlop says a better infant mortality record might be expected. The figures for the five years preceding 1926 were 81, 47, 49, 53, and 64. There is no antenatal clinic as yet, but 25 expectant mothers made 61 attendances by appointment at the school clinic. (The total number of births in the town was 507.) There is as yet no lying-in home for ordinary cases, but it is hoped to have such accommodation in the proposed new general hospital. Out of 1379 school-children examined only 27 per cent. were found to be adequately protected by vaccination. Of four cases of enteric fever notified one had an interesting history, the patient being apparently infected by living in the same house as a typhoid carrier who gave rise to an outbreak of a dozen cases in 1913.

The upland Dartmoor water, clarified by mechanical filters, has the advantage of being soft but not plumbo-solvent. Steps are being taken to prevent flooding in certain areas by increasing the sewerage facilities. Dr. Dunlop complains that the butchers do not coöperate in preventing the sale of diseased meat. By arrangement with the Newton Abbot R.D.S., the borough does the inspection of carcasses in the slaughter-houses just over the boundary. During the year 246 pigs' heads were condemned for tubercle, 61 of these being exposed for sale in shops. Dr. Dunlop would like to see a public abattoir

and a central depôt for meat inspection established. Designated milks show some progress. There is one producer of Certified milk in the borough and the council obtain Grade A (T.T.) milk for their refreshment rooms, for the open-air and secondary schools, and for necessitous mothers. There is big business in ice-cream during the summer months. The places of preparation were not always satisfactory, and one of them was a bedroom. Six samples of ice-cream were examined for *Bacillus coli*, each with a positive result, and, seeing that the ingredients are raised to the boiling-point, Dr. Dunlop blames dirty utensils for the contamination. During the year 369 houses were erected with State assistance, but of these only 31 municipal houses were available for renting, and therefore the relief to those most in need was trifling. On the Windmill Hill Council Estate 16 flats and 43 houses are to be erected. Dr. Dunlop puts in a plea for smaller flats and houses, but the policy of the Ministry of Health is to deal with the largest families first. There are several insanitary areas waiting to be sanified. For the "Pimlico" area, houses for the "to be dispossessed" have been erected and temporarily let to other tenants urgently needing them. If the dispossessed agree to take the houses erected for them, the temporary tenants will have to be moved into other council houses.

Tunbridge Wells.

Dr. F. C. Linton points out that the death-rate of 13·6 becomes a rate of 9·9 when corrected for the age and sex constitution of the population by the Registrar-General's factor. For about one-half of the year the water from springs in the Tunbridge Wells sandstone meets requirements. During the remainder of the year the spring water is supplemented by seven artesian wells at Pembury, whence it is pumped to a distributing reservoir 500 ft. above sea-level. The borings of the artesian wells pierce the Wadhurst clay and bring water from the underlying Ashdown sands. This water contains some iron which is effectively removed by Candy oxidising pressure filters, and there is also about an acre of open filter beds. The Ashdown sands reach the surface some miles from the bore wells. The temporary and permanent hardness are given as 3·5. Until the dry season of 1921 the sources mentioned were thought to be sufficient for the population, but it is now regarded as advisable to increase the supply, and, after an inquiry by the Ministry, it has been decided to tap the Ashdown sands to the north-west of the borough by a fresh bore-well about seven miles distant from the existing artesian wells. The method of refuse disposal has also been under review and it has been decided to study the plan adopted in Bradford, which it is hoped will prove less costly than treatment by a destructor.

A fund is being collected to meet the cost of transferring the general hospital from its cramped and noisy position to a more open and quieter site on the Mount Ephraim ridge. There is no municipal maternity home, but the corporation made an agreement in April, 1926, with a "voluntary" home for the admission of necessitous cases where the home environment is unsuitable. The dental practitioners have combined to form a district public dental service for the benefit of persons who are unable to pay large fees.

Ramsgate.

Dr. W. J. Bannister reports that the number of houses built during the year was much larger than in any year since the war, and with the completion of a considerable number of the houses of the council's scheme the prospect of substantial relief during 1927 is brighter. During the current year it should be possible to make progress with the Ratcliffe Square unhealthy area and to demolish some of the most unsatisfactory dwellings in the district. The death-rate of 13·1 becomes 10·9 when corrected for age and sex constitution of the population. Ramsgate compares unfavourably with other places as regards the number of uncertified deaths. The percentage for 1926 was 3·96, as compared with 1·0 for England and Wales, 0·5 for the 105 large towns, and 1·1 for the 158 smaller towns. The routine medical inspection showed that about 40 per cent. of the school-children are vaccinated. Antenatal clinics are conducted once a fortnight by a local medical practitioner. The shell-fish from Pegwell Bay are not allowed to be sold for human consumption until they have been sterilised for six minutes by steam under pressure. The council provides and works a sterilisation station at Broad-street, and no charge is made to vendors of shell-fish for use of the station. The water-supply is a hard chalk water and contains over 24 parts per 100,000 of chlorine as "salt." The adits from which the water is pumped are over one mile from the sea. The sewage is got rid of by gravitation without pumping and is conveyed through the outfall sewer to a point over 1250 ft. from the shore, whence it is carried by currents straight out to sea, whatever the state of the tide. An unusual nuisance caused by the rotting carcass of a whale about 24 ft. in length and weighing three tons had to be removed by the sanitary inspector from the foreshore. The control of the ice-cream trade is difficult as there is no power to compel the registration of ice-cream vendors, who suddenly increase in numbers during spells of hot weather.

Margate.

Dr. Rowan McCombe says that the population during the height of the season exceeds 100,000. A scheme is in hand for the erection of a much larger hospital in lieu of the existing cottage hospital. It is badly needed. There are four midwives practising in the town. Two are municipal, and at very little cost to the ratepayers confer incalculable benefits on poor people. They occupy their spare time in antenatal visiting.

The Margate Corporation supply water to 21 outside parishes. The water is pumped from deep wells with connecting tunnels in the chalk. An analysis gives the hardness as 18·2 before boiling and 3·8 after boiling, and the amount of chlorine expressed as "salt" as 3·69 gr. per gallon. The whole of the sewage has to be pumped twice a day for about one hour at high tide and is discharged at deep water about 600 yards from the cliff, having previously undergone a screening process. The housing problem is aggravated by the workers who come into the town every season to cater for visitors and remain in the town after the season is over, and in spite of the efforts of the corporation there are still a large number of families requiring houses. From 1921 to 1925 the corporation erected 206 houses and at present 150 are being built on the Dane Valley Estate, 24 of these having been completed during 1926. Great difficulty is being experienced in inducing ratepayers to use proper bins for house refuse and to keep them in a sanitary state. Action is to be taken under the local Act of 1926 to bring about a better state of things. An outbreak of paratyphoid occurred in a children's institution during the year; it was attributed to infected meat. There were 111 cases, mostly of a mild character and there were no deaths.

Lytham St. Anne's.

Dr. John P. Litt informs us that his borough is a seaside resort with a coast-line of 6¾ miles, facing successively south, south-west, and west, and extending from the estuary of the Ribble to the southern boundary of Blackpool. The population is more residential than industrial, though there is a slipper works, an aircraft works, a shipbuilding and engineering works, and several laundries. None of these has any specially bad influence on health. The infant mortality has come down to its present figure (57) from 143 in the last quinquennium of the nineteenth century, and 114 in the first quinquennium of the present century. The water is soft and derived from the impounding of the rivers Calder and Hodder and the Grizedale Brook. The sewage from the Lytham district is pumped into settling tanks and discharged into the sea one hour

after high tide. The works of re-sewering a large portion of the area is now in progress. The Ribble mussel beds were closed during 1926 and the borough treasurer and medical officer have been instructed to report on the mussel purification tanks at Conway. The condition of a portion of the cockle beds is under investigation. During the summer months a number of boys' brigades, cadet corps, and boy scouts camp in the open fields of the borough, and arrangements are made to ensure adequate water-supply and accommodation. The general standard of housing is very good and there are no back-to-back houses or unhealthy areas. The number of houses erected during the year was 254, including 56 municipal houses and 48 others erected with State assistance. There are 80 more municipal houses in course of erection. There are two public slaughter-houses, one at Lytham and the other at St. Anne's, and no private slaughter-houses. The veterinary inspector reports that he examined the milch cows, numbering about 560, every quarter. Twenty-one cases of suspected tuberculosis were reported to the county council, and of these 20 were considered to be infected and were slaughtered. The diagnosis was confirmed in each case; in one the larynx was chiefly affected, and in two the udder, whilst the remainder were cases of tuberculosis of the lungs or tuberculous emaciation. The standard of cleanliness was better than in previous years, grooming of cattle being more general. Proceedings were taken for milk below the standard in two cases; one was 16 per cent. deficient in fat and the other indicated a 9 per cent. addition of water. Both cases were dismissed at the Lytham police-court. All the elementary schools are supplied with formalin sprays. An up-to-date maternity block has been added to the St. Anne's war memorial hospital by the generosity of a local lady. The block was opened on Nov. 9th, and contains one four-bed and two single-bed wards, a labour room and an observation ward. The fee fixed is £3 3s. per week and the local authority intends to contribute a portion of the fee when necessary. It is hoped that the borough will take part in the county orthopædic scheme in respect of both ex-babies and school-children. At present specialist advice is obtained for urgent cases, but owing to the want of following-up little benefit results.

Bognor.

Dr. T. Philips Cole reports that his district is supplied with hard water from deep wells at Eastergate, about 4½ miles north of the town. Sewage is dealt with by two large storage tanks and a pumping station. The outfall is closed from five hours after until one hour before high water, during which time the sewage is pumped from the low level tank to the high level. New streets are now laid with surface water sewers, but the bulk of the storm-water at present passes into the foul water sewers and throws too great a strain on their capacity. It will be necessary shortly to make special provision for surface-water. Progress has been made in the erection of small houses during the year. The council built 41—12 parlour and 29 non-parlour. A firm of builders erected 34 parlour-houses to be let at a weekly rental. A further 51 have been built by private individuals with State assistance and the council have continued their policy of advancing loans up to 90 per cent. of the value of the houses. The waiting-list still contains the names of 127 residents. There were 41 milk samples examined for tubercle. Three which gave a positive result were all taken from one retailer, who had a mixed supply of milk from herds outside the district. The matter was reported to the county council. The herds were examined and one cow slaughtered. Further samples, however, were still positive and the matter was again reported to the county council and was still under investigation at the end of the year. Bacterial examinations of 66 samples were made to investigate cleanliness; 47 per cent. had under 30,000 bacteria (Certified standard); 81 per cent. had under 100,000; 97 per cent. had under 200,000 (Grade A standard); and 73 per cent. showed *B. coli* absent. These figure show an advance on the 1925 results. The bacteri examination of ice-creams gave very uneven result the bacteria per c.cm. varying from 1000 to 286,00 As the result of repeated testing and effort on the pa of the maker one lot of ice-cream improved fro 86,000 bacteria at the first test to 1000 at the seventh Diphtheria and scarlet fever have shown a sligh prevalence only during the past five years, an Dr. Cole attributes this to the fact that most of th susceptible individuals were attacked during th epidemic years 1919 to 1921.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 2ND, 1927.

Notifications.—The following cases of infectiou disease were notified during the week:—Small-po 228 (last week 259); scarlet fever, 1534; diphtheri 735; enteric fever, 89; pneumonia, 800; puerper fever, 41; puerperal pyrexia, 96; cerebro-spina fever, 9; acute poliomyelitis, 6; encephaliti lethargica, 38; dysentery, 10; ophthalmia neona torum, 117. There were no cases of cholera, plague or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, includin London, there was 1 death from small-pox (belongin to Oldham C.B.), none from enteric fever, 27 (1) fro measles, 6 (3) from scarlet fever, 20 (8) from whooping cough, 16 (3) from diphtheria, 36 (8) from diarrhœ and enteritis under two years, and 28 (3) from influenza The figures in parentheses are those for Londo itself.

Obituary.

LEWIS DAVIE CRUICKSHANK, M.D. ABERD., M.R.C.P. EDIN., D.P.H.

WE have to record the death, on July 10th, Dr. L. D. Cruickshank, following an attack of influenz The medical staff of the Scottish Board of Healt loses a valuable member, whose gifts were used t advantage in the public service.

Lewis Cruickshank was born at Tarves, Aberdee shire, in 1875. At the age of 17 he was alread manager of a wholesale drug business in Aberdee and when in 1902 he graduated in medicine at th University he was awarded the John Murray Med and Scholarship, and was regarded as the mo brilliant student of his year. After a short tim spent in pharmacological research and privat practice, he became medical officer and lecturer t the Aberdeen Provincial Training College, where was his duty to instruct school-teachers in the pri ciples of hygiene. From this work he passed on t the post of principal of the College of Hygiene an Physical Training at Dunfermline, in which capacit he visited Denmark more than once in order t familiarise himself with modern methods. Th reorganisation effected at the College led to i becoming a central institution under the Scottis Education Department, and Dr. Cruickshank's succe was recognised by his being made the first full-tim medical officer and chief inspector of physical trainin to the Department. Here it was his duty to supe intend the physical education given in more tha 3000 State-aided schools; he had control of numero assistants in this work, and as he was also responsib for the medical examination of school-children, an for the care of the feeble-minded, he acquire exceptional experience of public health work in i relation to education. This experience was frequent utilised on behalf of the Society of School Medic Officers, in the affairs of which he took a promine part. In 1919 the care of school-children ca under the ægis of the Scottish Board of Health, a Dr. Cruickshank was transferred to the Boar staff, as a member of which he was given charge important inquiries covering a wide field. Th

work gave him plenty of scope for using his powers as an organiser and for applying his notable constructive ability. The last investigation on which he was engaged was the special inquiry made to determine the nutritive value of milk as a food for growing children. This inquiry, conducted in conjunction with Dr. J. B. Orr, director of the Rowett Institute, is said to be the largest of its kind ever made in Scotland, and it is hoped that the results to be published will be of great value.

Dr. Cruickshank leaves a widow and three sons.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

MENTAL DEFICIENCY BILL.

THE Mental Deficiency Bill was considered by Standing Committee A of the House of Commons on June 28th. Sir RICHARD BARNETT was in the chair.

Clause 1 (definition of defectives) reads as follows :—

(1) The following Section shall be substituted for Section 1 of the Mental Deficiency Act, 1913 (in this Act referred to as "the principal Act")—"1.—(1) The following classes of persons who are mentally defective shall be deemed to be defectives within the meaning of this Act: (*a*) Idiots, that is to say, persons in whose case there exists mental defectiveness of such a degree that they are unable to guard themselves against common physical dangers. (*b*) Imbeciles, that is to say, persons in whose case there exists mental defectiveness which, though not amounting to idiocy, is yet so pronounced that they are incapable of managing themselves or their affairs, or, in the case of children, of being taught to do so. (*c*) Feeble-minded persons, that is to say, persons in whose case there exists mental defectiveness which, though not amounting to imbecility, is yet so pronounced that they require care, supervision and control for their own protection or for the protection of others, or in the case of children, that they appear to be permanently incapable by reason of such defectiveness of receiving proper benefit from the instruction in ordinary schools. (*d*) Moral defectives, that is to say, persons in whose case there exists mental defectiveness coupled with vicious or criminal propensities, and who require care, supervision and control for their own protection or for the protection of others. (2) For the purposes of this Section 'mental defectiveness' means a condition of arrested or incomplete development of mind existing before the age of eighteen years, whether arising from inherent causes or induced by disease or injury."

Colonel WEDGWOOD moved in substituted Subsection (1) (*c*) to leave out the words "for their own protection or." He said that while there was not much difference between paragraphs (*a*), (*b*), and (*c*) and the wording of the original Acts, these particular words were novel. He preferred the definition in the original Act. It has been stated on the second reading of the Bill that it was intended primarily to deal with the victims of encephalitis lethargica; persons who developed feeble-mindedness after the period of infancy. With that proposition he had no complaint at all. There did not seem to be any difference between feeble-mindedness developed in infancy and feeble-mindedness developed later on; the same law should apply, but there was a considerable alteration in the definition of moral defectives in paragraph (*d*). The real danger of the Bill was that they brought within its scope a large new class of people who would be liable to be sentenced for life to these homes for mental defectives. Did they really want to get in the definition of feeble-minded, immoral girls who walked the streets, and who were feeble-minded to a certain extent as far as their moral capabilities could be measured, but were otherwise not feeble-minded at all. The chief argument was that such women bred unrestrained feeble-minded children. He did not think that was proved, but medical men knew better than he did. These girls were quite as fully acquainted with all the modern devices for preventing propagation as any other section of the community, and he did not think they bred more than others. If they did, he did not believe in the interests of the community that they ought to stretch the definition of feeble-mindedness to include them. These words, "for their own protection," were the dangerous words. As long as feeble-minded people were dangerous to others they came under the same law as lunatics, and they must be shut up. But these words "for their own protection" took in people who were not a danger to the community; people who were merely immoral and who, well-intentioned people thought, should be protected for their own sake. If they could protect them and leave them free by all means let them do so, but if they could only protect them by putting them away for life, then in considering what form of protection they ought to apply, they should compare it with the desirability of leaving people who were not a danger to the public to carry on an immoral life.

Mr. CROMPTON WOOD said that he did not think under the Mental Deficiency Act there was any imprisonment for life. The tendency was to try to get rid of these patients as quickly as possible. There was nothing like enough room for all the patients who wanted attention, and certainly the precautions taken and the continual examination of these people quite precluded any suggestion that they were imprisoned for life. If the Committee left out these words they barred from institutional care all those who were not a menace to other people, but who still wanted care, supervision, and control. They wanted to bring under this Bill as many people as needed its benefits. The people who would be excluded if these words were omitted needed the benefits such as care, teaching, and nursing, and what was much more important, the most skilled medical advice which they could never obtain in their own homes. Colonel Wedgwood was asking the Committee to legislate in one way for the rich and another way for the poor. It was estimated that about 10 per cent. of the young people who went through these great institutions were enabled to go out into the world largely owing to the care and attention which they received. This amendment would ruin the whole meaning of the Mental Deficiency Acts.

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) said that from the point of view of his department he could not advise the Committee to accept the amendment. Colonel Wedgwood's remark about locking these people up for life was a complete misstatement of the position in regard to the treatment which people got in these institutions to-day. He should have thought that nothing would have appealed more to the humane feelings of anyone than that steps should be taken to give these people such assistance as was possible in these institutions. To confine the clause to those who could only be sent to these institutions for the protection of others was an impossible course of action which he did not think anyone would care to adopt. With regard to the question how this clause would come into operation, the answer was that it would come into operation in the way laid down in the ordinary law. If anyone was considered to be a subject for the operation of the clause there would have to be two medical certificates, and the matter would have to be dealt with by the justices of the peace. When a person was put into an institution in that way it was always subject to the opinion of the Board of Control, and there was ample opportunity for revision. Full opportunity was given for patients to be discharged if they were cured or able to be discharged.

Mr. RHYS DAVIES said he knew a case where five children were feeble-minded. None of them had ever been taken away from home until one was found after a football match wandering in the streets and not able to find his way home. He was taken to an institution and remained there. He (Mr. Davies) thought that the other four would be better in an institution; but the parents were all right mentally, and they thought that the children were better under their care. If the Committee passed this clause, would it then be possible for the authorities to come into the home of these people and take their four children away from them without those four children committing any offence at all? He had a little fear on that score.

Sir K. WOOD: I do not look at the matter in that way. We must not wait until an offence is committed. The whole operation of this law and the present administration is to prevent offences being committed. We do not want to wait until unhappily one of these four children commits some of those offences of which we read in the newspapers.

Mr. DAVIES: Then you could put the whole community into an institution in that case?

Sir K. WOOD: No. The hon. Member overlooks the many provisions for the supervision and release of people of this kind. We do not want to break up families and remove children from their parents unless it is for the benefit of the children themselves. That is the idea which animates the administration of this Act, and therefore we could not possibly accept the amendment.

Mr. CHARLETON said he had a mentally defective boy who was even worse than the category under discussion. He knew scores of working-class families in the same position, and this clause would cause a great deal of trouble and anxiety to those people. He thought that it would be better if some safeguard were inserted in the clause.

Sir K. WOOD said that he was afraid he had not made the matter clear. The Mental Deficiency Act, 1913, provided that where the parent or guardian was not asking for the child to receive this care—

"the order shall not be made without the consent in writing of the parent or guardian unless it is proved to the satisfaction of the judicial authority that such consent is unreasonably withheld or that the parent or guardian cannot be found, but consent shall not be deemed to be unreasonably withheld, if withheld with *bona fide* intention of benefiting the defective."

The amendment was negatived.

Mr. CHARLETON moved in the substituted Subsection 1(*d*) to leave out the words "Moral defectives, that is to say."

He said he moved this formally in order to get some explanation of the meaning of these words.

Mr. RHYS DAVIES said that the persons to whom this Bill referred were divided into four categories—idiots, imbeciles, persons mentally defective, and cases of moral defectiveness. He was not arguing against these words, but they ought to have a clear understanding of the exact position. There was a feeling that this Bill introduced something new by declaring moral defectives as falling within the category of the cases provided for under the Act of 1913. He knew a case of a boy of 15 who committed an offence against a little girl 6 years of age. That case was brought before a court, and instead of the boy being sent to a reformatory school he was found to be mentally deficient and he had been shifted several times from one institution to another. He had been in communication with the medical officers of the institutions where the boy had been sent, and his opinion was that if the boy was not going to be in an institution for life he would be there for a very long time. It was rather terrible to contemplate the possibility of that boy being detained for five or ten years for a single offence of this kind. If he could get an explanation of the type of case to be dealt with under this paragraph he would be satisfied.

Sir K. WOOD said this amendment, taken together with another which stood on the amendment paper, would have the effect of confining paragraph (*d*) of Subsection (1) to encephalitis lethargica. Unfortunately a very large number of people suffered from a good many other things of an abnormal type. These people committed all sorts of unnatural offences which must be dealt with not only in their own interests, but in the interests of the community as a whole. It was not the offence which had to be considered, but whether in the person who was affected there existed mental defectiveness coupled with vicious or criminal propensities.

The amendment was withdrawn.

Clause 6 (which amends Sections 21 and 30 of the principal Act) reads as follows :—

(1) Section 21 of the principal Act (which relates to the central authority) shall have effect as if after the word "supervision" there were inserted the words "training" "occupation." (2) Section 30 of the principal Act (which relates to the general powers and duties of local authorities) shall have effect as though—(i) after paragraph (*c*) thereof there were inserted the following paragraph : (*cc*) to provide suitable training or occupation for defectives who are under supervision or guardianship or have been sent to certified institutions. (ii) in proviso (i) thereto there were substituted for the words "paragraphs (*b*), (*c*), (*d*), and (*g*)," the words "paragraphs (*b*), (*c*), (*cc*), (*d*), and (*g*) ; (iii) at the end thereof there were added the following proviso : (v) a local authority shall be under no obligation to provide training in the case of any defective under supervision if they satisfy the Board that there are in his case adequate reasons for not so doing.

Mr. CROMPTON WOOD moved in Subsection (2, iii, v), after the word "training" to insert the words "or occupation." Clause 6, he said, was one of the most important clauses in the Bill. The local authorities were responsible for the training and occupation of mental defectives after the age of 16, when they had left special schools. It was greatly in the interests of the poor part of the population that this training should be the duty of the community. When this matter was discussed with the county councils they agreed to accept this responsibility conditionally upon the insertion of Clause 5 (amendment of Section 11 of the principal Act), which was a rider to protect them from the obligation of providing training in the case of defectives under supervision if they satisfied the Board that there were adequate reasons for not doing so. They ought to have put in the rider the words "training or occupation." They had to consider cases occurring in country places where the defectives were far away from a place where training or occupation could be provided, and they must protect the county councils in cases of this sort. Those councils were accepting a great responsibility, and they must assist them by putting in these words.

The amendment was agreed to.

Sir K. WOOD moved the following new clause :—

If in any case in which, under Section 8 of the principal Act, a Court has directed a petition to be presented against any person and ordered that person to be detained pending the presentation of the petition and the adjudication thereof, it is found impracticable to present a petition or the petition is dismissed, then, unless the Court has otherwise ordered, that person shall, until he can again be brought before the Court, be dealt with as follows (that is to say) : (*a*) If the place in which he is being detained under the order of the Court is a prison or a place of detention provided under Section 108 of the Children Act, 1908, he shall continue to be detained in that prison or place. (*b*) If the place in which he is being so detained is not a prison or such a place of detention as aforesaid, he shall be removed therefrom to a prison or, if he is a child or young person, to a place of detention, or if in the opinion of the Secretary of State it is inexpedient that he should be removed to a place of detention, then to such other place as the Secretary of State may by order direct.

He said that the difficulty was caused through a curious oversight in the drafting of the principal Act of 1913. Under Section 8 of that Act in certain circumstances a court of justice might postpone the passing of sentence on a defendant brought before it and direct that a petition should be presented to a judicial authority with a view to obtaining an order that the person should be sent to an institution for mental defectives or placed under guardianship and the court was empowered to order that the person be detained in such institution or place of safety for such time as was required. That was all very satisfactory and right and the provision had worked smoothly, but the Home Office had had a number of cases where apparently no provision was made under the law, and where as a result of further observation and examination of the person the local authority had been unable to present the petition and send the person to an institution on the ground that the medical men agreed that it was not a case of defective mentality but a case of the person being a criminal who ought to be dealt with by the Court which originally suggested that the petition should be presented. It was a curious thing that in that case apparently there was no provision at the present moment to detain that person and bring him back to the original court again. Paragraph (*a*) was provided with a view to making sure that in such a case such a person should not go free. Paragraph (*b*) was moved with the object of bringing the clause into line with the other provisions of the Children Act, which governed the placing of children in places of detention.

The clause was read a second time and added to the Bill.

Sir K. WOOD moved the following new clause :—

Every joint committee or joint board constituted under Section 29 of the principal Act shall be a body corporate by such name as the order constituting the committee (whether the order was made before or after the passing of this Act) may direct, and shall have perpetual succession and a common seal and may hold land for the purpose of their powers and duties without licence in mortmain.

He explained that this clause was moved with the object of removing doubts and regularising the position of certain joint bodies who had been incorporated under Section 29 of the principal Act which empowered the Minister to make an order where two or more local authorities desired to join together in this way. It had been questioned whether the present law was sufficient for them to do so. Already five local authorities had found it convenient to administer the Act in this way, and at the present moment they had two further applications in that connexion.

The clause was read a second time and added to the Bill.

Mr. ELLIS moved the following new clause :—

"Section 44 of the principal Act (which relates to the determination of residence) shall be amended by the insertion therein after Subsection (2) of the following new Subsection :—(2*a*) Where the order is made by a judicial authority and is in respect of a person in an institution for lunatics, certified institution, approved home, or other public or charitable institution, that person shall for the purposes of the provisions of the last foregoing section be deemed to have resided in the place which was his place of residence immediately before he was received into the institution or home, and if for the purpose of or in connexion with his reception into the institution or home any place was determined to have been his place of residence, that determination shall be conclusive."

He said that the object of the clause was to settle financial responsibility as between two authorities. Under the old Act a very curious position was found to arise. In his constituency of Wakefield there was situated partly on the border and partly inside his constituency the asylum of the West Riding Authority. That asylum in consequence of the necessity of dealing with certain cases which were deemed to be mental deficients rather than lunatics had removed several of their patients to their residences. The place of residence appeared to be actually within the borough of Wakefield, and the effect had been to cast the financial responsibility for West Riding patients on to the borough. This clause was intended to make it clear what the place of residence was and to ensure that in the future mental deficients belonging to a particular place should be paid for by that place.

Sir K. WOOD said that he thought the case which had been raised by the hon. Member was one that ought to be dealt with, and he had therefore much pleasure in accepting the new clause.

Lieut.-Colonel FREMANTLE said that he had been asked to move an amendment to the clause on behalf of the London County Council. It was to insert at the end the words—

"Provided that for the purposes of this Subsection the place of residence shall be deemed to be (1) in the area of the County or County Borough in England and Wales."

Sir K. WOOD said that he would suggest that his hon. friend consulted with him later and that the matter should be dealt with on the report stage.

Lieut.-Colonel FREMANTLE said that he was quite prepared to do that.

The clause was read a second time and added to the Bill.

The Committee stage was concluded and the Bill, as amended, was ordered to be reported to the House.

HOUSE OF LORDS.

THURSDAY, JULY 7TH.

LIQUOR (POPULAR CONTROL) BILL.

THE debate was resumed on the second reading of the Liquor (Popular Control) Bill.

The Earl of DUNMORE said that the effect of the expenditure every year of £300,000,000 of our national wealth on intoxicating liquors, especially at a time when most of our industries were struggling with high taxation and other adverse circumstances, was very difficult to estimate. Its effect was probably to be seen in some of the most pressing political problems of the day. It certainly made the argument of some of their lordships, including Lord Dawson that this social evil of drink was a disappearing factor in our national life, seem to be hardly justified by facts. He thought that the Bishop of Liverpool came much nearer to the truth when he told the House that sooner or later the country would have to tackle this question, and that the only road to a solution of the problem lay in taking the trade out of private hands. He believed that this Bill gave a liberty for experiment to a large section of the electorate which was badly needed.

Earl RUSSELL said that at an earlier part of the debate they had one of those very interesting speeches which they got too seldom from Lord Dawson. As he had done on previous occasions, the noble lord had given a certain amount—he might almost say a considerable amount—of praise to the advantages of alcohol in civilised society, and he finished off in an almost lyrical passage by saying that it added to, and was to a large extent the cause of, the frolic and fun of the world. When he listened to those words he (Earl Russell) wondered for a moment whether their lordships had here a reincarnation of the Persian tentmaker, or perhaps of Dionysius, not at all the sort of figure which one would have normally associated with Lord Dawson. He was rather interested also to notice that later in his speech, when Lord Dawson came to deal with young soldiers at Aldershot, who went to the dry canteen and did not take liquor, he repeated, apparently with approval, what had been said to him by a general or a colonel to the effect that they were fine upstanding young men, and one could see at once by their faces that they did not take drink. These two propositions did not seem to him (Earl Russell) to be quite consistent. When one contemplated the enormous harm that was done in this country by the consumption of drink—the poverty which it entailed, the misery to which it so often gave rise, and the injury, small in many cases, no doubt, but constant, to the general health of the population, injury to which Lord Dawson bore unwitting tribute when he referred to those fine upstanding young men—it seemed to him very much to be regretted that such important leaders as a distinguished doctor and a right reverend Prelate (the Bishop of Durham) should use words which would be quoted outside without their context, and would give rise to the impression that people who were the guardians, the one of the public health, and the other of public morals, did not think that there was anything to be said against the consumption of alcohol. When they were considering this subject it was not enough to say that this or that remedy had not been sufficiently considered, or that it was financially unsound. If the majority of their lordships were really convinced that some legislative move in the direction of temperance was desirable, in addition to the educative move, then they must not merely submit a negative to Bills of this kind, but they had a duty to support or suggest some form of constructive proposal. It was for that reason that when they came to the division he would vote for the principle of some legislative action being taken, and for some consideration being given to this Bill and its details in Committee. The question of total prohibition, even in an area, was, he admitted, a very difficult one. He confessed that he did not like the principle of a compelled morality in any form, but if a sufficient majority in an area thought that prohibition was desirable it seemed to him that the experiment might be tried. He agreed that there had been an immense improvement in the sobriety, self-restraint, and self-control of the people, and he believed that it was still going on. Although it was doubtful whether they would accelerate it by total prohibition, still he felt that at least they need not retard it by the present system of flaunting opportunities of drink and pressing people to drink not only more than was good for them, but more than they wanted.

The Earl of BIRKENHEAD (Secretary of State for India) said that as he listened to Earl Russell he was confirmed in his view that the Government were right in their conclusion that they were unable to support the Bill. The Bill had been riddled on its financial side, as well as on its theological, moral, and sociological side. It was framed on a principle which must fail because it was anti-social. It was claimed that the Bill was democratic, but a more amazing pretension was never put forward. Its proposals were ill-conceived, confusedly thought out, financially unsound, and in absolute antagonism to the spirit and traditions of the British people. That spirit and those traditions had throughout the ages, and not unsuccessfully, proceeded on the basis that a great confidence might be reposed in the moderation and commonsense of the humble folk of this country, and that moral improvement was to be imposed on them not by coercion and not by sermons, but by trusting them and making them the judges and trustees of their own morality, and treating them as the responsible custodians of their own moral forces.

Lord BALFOUR OF BURLEIGH regretted that the Government had thought fit to put on the Whips against this measure. He would vote for the second reading of the Bill, and he hoped that a sufficient number of the supporters of the Government would go with him into the lobby to show the Government that there was a strong feeling in the party in favour of constructive proposals for temperance reform.

On a division the motion for the second reading was negatived by 144 votes to 36—majority against, 108.

TUESDAY, JULY 12TH.

Medical and Dentists Acts Amendment Bill.

Lord LOVAT introduced the Medical and Dentists Acts (Amendment) Bill, which was read a first time.

HOUSE OF COMMONS.

WEDNESDAY, JULY 6TH.

Hydroquinone and Lactic Acid.

Mr. FENBY asked the President of the Board of Trade if he was aware that the exemption orders applied for last year under Section 10 (5) of the Finance Act, 1926, in respect of hydroquinone and lactic acid B.P., being products liable to duty under Part I. of the Safeguarding of Industries Act, 1921, had not yet been issued; that his department were refusing to issue these exemption orders although the products in question were still not made in His Majesty's Dominions and that, in consequence, hospitals and other consumers of these products which had to be imported were compelled to pay at least one-third more than would otherwise be the case; and would he take steps to issue the exemption orders in question forthwith.—Sir P. CUNLIFFE-LISTER replied: An exemption order regarding hydroquinone was issued by the Treasury on June 23rd. Preparations for the manufacture in this country of B.P. lactic acid are well advanced, and the conditions for exemption laid down in Section 10 (5) of the Finance Act, 1926, are not therefore satisfied.

Post-vaccinal Encephalitis and Nervous Disease.

Mr. DAY asked the Minister of Health whether he would publish the full reports of the committee of inquiry which inquired into post-vaccinal encephalitis appointed by his department at the end of 1924.—Sir KINGSLEY WOOD replied: I assume that the hon. Member is referring to the committee appointed by one of my right hon. friend's predecessors in 1923. The terms of reference of that committee were limited to the consideration of the question whether any further experimental research could be initiated to throw light on the possibilities of vaccine lymph producing nervous diseases as a complication of vaccinia. The committee recommended that further research was desirable, and their report was referred to, and is under the consideration of, the Committee on Vaccination, which is now sitting. In these circumstances, my right hon. friend does not propose to consider the question of publishing the report of the committee appointed in 1923 until he has received a report from the present committee.

Mr. DAY: Is the hon. gentleman aware that this is referred to rather extensively on the Continent, and if that be so, does he not think it would be better to publish a report in this country?

Sir KINGSLEY WOOD: I think the hon. Member had better wait and see what the subcommittee do.

Food Adulteration.

Mr. DAY asked the Minister of Health the number of prosecutions instituted by his department, or by the inspectors under his control, for the adulteration of food for the 12 months ended to the last convenient date.—Mr. CHAMBERLAIN replied: Prosecutions in respect of the adulteration of food are not instituted by my department, but by local authorities and their officers. I am not in a position to state the total number of prosecutions undertaken in any period, but the reports which are sent to my department show that the number of samples of food taken in England and Wales during the 12 months ending on Dec. 31st, 1926, was 120,617, and that 7044 of these (or 5·8 per cent.) were found to be adulterated.

Dogs and the Public Health.

Sir G. COURTHOPE asked the Minister of Health whether his attention had been called to the increase in the number of dogs in urban areas and the consequent fouling of pavements and other public places; and whether he contemplated taking steps to reduce the number of dogs kept in towns in the interests of cleanliness and the public health.—Sir W. JOYNSON-HICKS (Home Secretary) replied: Yes, Sir. My attention was recently drawn to the increase in the number of dogs in London, and many local authorities have complained of the fouling of pavements. But any proposal to reduce the number of dogs would require legislation, and I am not sure that this would be supported by public opinion.

International Opium Convention.

Mr. CAMPBELL asked the Home Secretary which of the signatory Powers to the International Opium Convention of February, 1925, had deposited ratifications of that Convention; whether that Convention was now in force; and, if not, when it was likely to become operative.—Sir GEORGE HENNESSY replied: I understand that since the replies given to the hon. Member on Feb. 14th and Nov. 17th last, the Netherlands, Bulgaria, Czecho-Slovakia, and Poland have ratified the Convention. As stated in the reply of Nov. 17th, the Convention cannot come into force until the requisite number of ratifications prescribed in Article 36 have been deposited. H.M. Government have done their best to urge ratification by the other signatories.

Discovery of Girl's Body in Scotland.

Mr. SCRYMGEOUR asked the Secretary of State for Scotland whether he had completed his inquiries into the case of a girl reported to have been drowned, whose body was found at Invergowrie on June 12th; why the body was conveyed to the grave on a common lorry covered by sacking or tarpaulin, having been left till burial in an old shed; whether the cause of death was ascertained by a post-mortem examination; whether there was any evidence suggesting that the girl was under the influence of drink or drugged; why a photograph was not taken; and whether the police description gave details about the condition of her teeth, whether artificial or natural, and the value of her rings, if any.—Sir JOHN GILMOUR replied: I have obtained information on the points raised in the questions. I am informed that the body of the woman concerned was found on June 12th on the foreshore at Invergowrie, and was removed by the police to an unoccupied lockfast shed and examined by a doctor, who certified that death was due to drowning. The shed, according to my information, was suitable for the purposes of safety and decency, and also for purposes of identification. A description of the body and clothing was given by the police to the press and appeared in the newspapers. I am informed that the description did not give details about the teeth, which were natural and in good condition, but that it did refer to a ring worn by the deceased. A number of persons viewed the body but failed to identify it. The case was reported by the police to the Procurator-Fiscal, who reached the opinion that the case was one of suicide, and that there was nothing suspicious about it. A post-mortem examination in the form of dissection was not considered necessary. There was no evidence suggesting that the woman was under the influence of drink or had been drugged. A photograph was not taken because, in the opinion of the police, such a photograph would have been of no use for identification purposes in this case. After the Procurator-Fiscal was satisfied that there were no suspicious circumstances, the body was handed over to the sanitary authorities and buried on June 16th with the authority of a direction by a justice of the peace in accordance with Section 69, Subsection (1) of the Public Health (Scotland) Act, 1897. I am informed that the body was conveyed to the grave in a plain black coffin, carried on a lorry, and covered with an ordinary van cover. I see no reason for holding that proper steps were not taken in this case, but I think that the general question of taking a photograph for purposes of subsequent identification merits further consideration, and I propose to examine that question further in consultation with the Lord Advocate.

Insanitary Houses in Glasgow.

Mr. STEPHEN asked the Secretary of State for Scotland if, in view of the report of the condition of insanitary houses in Glasgow, he would consider the introduction of legislation to make it illegal for property owners to take rent for houses which had been declared unfit for human habitation by the sanitary authorities.—Sir JOHN GILMOUR replied: Local authorities already have statutory powers to deal with houses unfit for human habitation either by requiring the owners to make them habitable, or by closing and demolishing them. In the circumstances I am not prepared to consider the introduction of further legislation on the subject.

THURSDAY, JULY 7TH.

FINANCE BILL.

The House went into Committee on the Finance Bill, Captain FITZROY (Deputy Chairman of Committees) in the chair.

Mr. MACQUISTEN moved a new clause to provide that the duty on whisky should be reduced from its present figure of £3 12*s.* 6*d.* to £1 10*s.* He said that if he thought that this proposal would affect the revenue he would bring it forward with some diffidence in the present state of the country's finances; but he was satisfied if they sold whisky at 6*s.* per bottle instead of 12*s.* 6*d.* the consumption would be increased at least three times, and the Chancellor of the Exchequer would gain 90*s.* in place of his present 72*s.* 6*d.* As to the effect of whisky on the health of the people, that spirit was first invented by the clergy in the twelfth century, and at that time was largely used as medicine. They read of James V. giving so many bushels of barley to the monks of Dryburgh to make the "spirit medicine." Whisky was still very largely used as a medicine. It was a poison, but a slow poison, which killed the microbes of diseases. He remembered in 1918 an influenza epidemic taking place in a mine in South Africa with which he was connected, and during that epidemic they lost over 100 of their coloured labourers and none of the white staff. He said to the doctor: "You have a wonderful record in regard to the white workers, why could you not save the blacks?" and he replied: "I had not enough whisky to save the black men. By the time I had poured it down the whites there was very little left for the negroes, although a few of them were saved who got some for acting as undertakers." In 1920, when the Local Veto Bill was before Parliament, a police constable in the House of Commons said to him: "A dreadful thing is going to happen in Scotland. We live 50 miles away from a doctor and my mother always keeps a couple of bottles of whisky in the house. If any members of the family are taken ill they get half a bottle of whisky and they get better. We may not get it now."

Mr. JOHNSTON: Will the hon. Member explain why it is that insurance companies will insure a man's life at 10 per cent. less premium if he is a total abstainer?

Mr. MACQUISTEN said that those who insured their lives might give an undertaking to be total abstainers, but it never got any further than an undertaking. Continuing, the hon. Member said that out in the East there was a very large trade for whisky for sanitary reasons. It was a disinfectant, and everybody consumed it. There were no teetotallers there, because they all died very quickly. He expected that he would get from some of the members of the Labour Party stories as to the gaols and lunatic asylums which were being filled with drunkards. He was talking in the north to a leading alienist, and he put that question to him. The doctor replied: "It is all nonsense. Feeble-minded people take to drink because they are feeble-minded; they are not feeble-minded because they have a drink."

Mr. R. MCNEILL (Financial Secretary to the Treasury) said that he could give a very short answer to his hon. and learned friend. He was not called upon as representing the Treasury to go into the various questions as to the comparative values of whisky and other commodities. He looked at the thing from a purely financial point of view. This clause which Mr. Macquisten asked the Committee to accept would involve a loss to the Exchequer of something over £18,000,000. In order to neutralise the financial loss which this clause would entail to the Exchequer they would have to have an increase of 130 per cent. in consumption, and if his hon. and learned friend could be serious for two minutes he asked him to consider seriously whether they could face with equanimity an increase of 130 per cent. in the consumption of whisky next year? He hoped that the Committee would silently pass a vote of thanks to Mr. Macquisten for his entertainment, and let them get on to something else.

The clause was negatived without a division.

Major HILLS moved a new clause allowing an income-tax payer to deduct from his income-tax assessment expenditure due to the confinement of his wife, including the fees of physicians and nurses, and other costs immediately attributable to the confinement. He said that the deduction he proposed would be allowed whatever might be the number of children in the family. It became an increasing benefit not according to the wealth or position of the parent, but according to the number of the family. This was meant as an encouragement of children. The class at the bottom of the income-tax ladder was a very valuable class. It represented people on their way up in the world, and it was very important that they should be encouraged and produce children. The cost of confinement was a very heavy cost, and a bigger proportionate cost to parents with small incomes. Though parents with small incomes might not have an expensive doctor and nurse, the proportional cost was much greater.

Mr. R. MCNEILL said he must resist the clause. He could not see any reason why Major Hills desired to move the clause, which seemed to be a sort of converse to birth control, for his purpose here was to encourage an increase in the population. However desirable it might be to do that, it was not the function of the Treasury.

Lieut.-Commander KENWORTHY: Why do we have children's allowances at all?

Mr. R. MCNEILL said that children's allowances were not made for the purpose of encouraging large families; they were made to enable the parent of the family to discharge his duty to the Government, which was quite a different thing. This clause was an encouragement to people to be very reckless in regard to the class of medical attendance, nursing and nursing homes, which they selected. They would go to a very fashionable ladies' doctor and a very fashionable neighbourhood, and take very expensive rooms in a nursing home in Cavendish-square, and all the expense of this his hon. friend wished, to a certain extent, to be borne by the State through a deduction from income-tax. He saw no reason whatever for that. Why, if a man was to be assisted in this way on account of the confinement of his wife, should he not get similar assistance in other illnesses, much more dangerous and probably more onerous from the financial point of view. He hoped the Committee would support the Government in refusing this request.

The clause was negatived without a division.

Sir F. MEYER moved a new clause to provide that licence-holders of off-licences should be permitted to sell half-bottles of spirits. He said that as the law stood at present anyone who desired to buy less than a bottle of whisky or a bottle of brandy or other spirits was obliged to go to a public-house. That seemed to him to be a very curious and anomalous law. The supposed justification for it was that on-licence holders paid a considerably higher rate of duty than the off-licence holder. There might have been some justification for this point of view in former days, but now, when whisky cost 12*s*. 6*d*. per bottle, and brandy anything from 15*s*. a bottle, and a half-bottle cost 7*s*. or more, no one could say that permission to go to the grocer or the wine merchant to buy half a bottle of spirits would encroach severely on the rights of the publican to sell small quantities for on- or off-consumption for which he paid a higher duty. It had also been argued that the present system was in favour of temperance. But it seemed to him a very curious suggestion as a temperance argument that people should be compelled either to buy more spirits than they intended from the off-licence holder, or alternatively should go to the public-house for what they wanted.

Mr. R. MCNEILL said that there was little or no evidence of a sense of grievance or any public demand for a change in this matter. He agreed that on-licence holders all over the country were keen to get this particular restriction swept away, but that did not amount to what was called public opinion. He had a deputation before him at the Treasury on this subject more than a year ago, and all sorts of reasons were put forward. One specially urged was that in time of genuine sickness very often a person was ordered a little brandy, and it was very hard lines if he could not get a small quantity at a grocer's shop, and had to submit to the indignity of going to a public-house for it. When he suggested to the deputation that it would be possible to meet their view by making an exception in the case of brandy, that was immediately swept away and he was told that brandy had no particular medicinal value. His well-meant effort to meet a grievance was swept away, and he did not find then, and he did not find now, that there was any real grievance of which they were entitled to complain. He did not suggest that this clause should be rejected on the ground of any loss of revenue. But everyone knew that there was no more thorny question than the licensing law, and men of all parties once they began to operate on the licensing laws would find themselves in all sorts of pitfalls and difficulties, and hornets' nests, which they would do much better to avoid. He would, however, promise to ask the Chancellor of the Exchequer to reconsider this matter before the report stage, and if his right hon. friend found that it was possible for him to do so, he would then come to a definite decision.

Dr. WATTS said that he was not concerned with the on- or off-licence; he was only concerned with the comfort of the people. Reference had been made in that debate to the value of whisky or brandy in the treatment of disease. When he was in active medical practice some years ago he met with numerous instances of difficulties which were entailed by the operation of the law which this clause sought to remove. He had seen in his practice in days gone by scores of people, as in the great influenza epidemic, whose lives were entirely saved by the free administration of whisky or brandy. He was speaking from experience. He had known poor people who in times of stress and illness had had reason to get a small quantity of spirits, but they had had to go to off-licence premises and pay for a whole bottle. When the crisis was over they had been left with a large quantity of whisky, and in their natural satisfaction they had consumed the whisky, he was sorry to say, in some cases with bad consequences.

Sir F. MEYER offered to withdraw the clause, but a division was insisted on by the Opposition.

The clause was negatived by 170 votes to 80.

Bursitis among Miners.

Mr. TINKER asked the Home Secretary if he was aware that the miners were protesting against the description in the recent order issued by him dealing with industrial diseases under the Workmen's Compensation Act, which contained the definition subcutaneous cellulitis or acute bursitis arising at or about the knee (beat knee), subcutaneous cellulitis or acute bursitis over the elbow (beat elbow), as they were of opinion that the word acute should be struck out; and would he give further consideration to this question.—Sir WILLIAM JOYNSON-HICKS replied: Before issuing this order I considered a request from the miners to omit the word "acute." This request, however, was not supported by any evidence, and as the report published by the Medical Research Council showed that bursitis is not a disabling condition except when there is acute inflammation, I was unable to adopt the suggestion. I have received no further representations, and see no grounds at present for reconsideration.

Small-pox in England and Wales.

Dr. VERNON DAVIES asked the Minister of Health the monthly return of the number of small-pox cases certified in England and Wales, including London, from January, 1927; and the number of districts in which these cases had occurred.—Mr. CHAMBERLAIN replied: The following is the answer:—

Small-pox Cases Notified in England and Wales.

Four weeks ended	Jan. 29th	.. ..	2178 cases.
Four "	" Feb. 27th	.. ..	1808 "
Five "	" April 2nd	.. ..	2170 "
Four "	" April 30th	.. ..	1364 "
Four "	" May 28th	.. ..	1202 "
Five "	" July 2nd	.. ..	1200 "

These cases occurred in 214 sanitary districts. The figures are subject to revision.

FRIDAY, JULY 8TH.

INDIAN MEDICAL SERVICE.

The House went into Committee of Supply on the Civil Service Estimates for 1927, Mr. JAMES HOPE, Chairman of Committees, in the chair.

On a vote of £74,834 for a contribution towards the cost of H.M. Secretary of State for India in Council, including a grant-in-aid,

Earl WINTERTON (Under Secretary for India) said that some of the Indian local authorities had performed their duties satisfactorily while others had not done so. Many Indians, including Mr. Gandhi, had drawn attention to the delinquencies of some of these local authorities. The point was—and he would emphasise this as strongly as he could—that a great deal of the health and welfare of the individual Indian depended on how those authorities did their work, and the results, whether they were good or bad, mainly depended on the efforts of Indians themselves. In these matters they had Swaraj now and that was a fact which they should always bear in mind when they were discussing health matters—water-supply and things of that kind. After dealing with improvements which had recently been made in the housing conditions in Calcutta and Bombay, the noble lord said that he had seen returns from employers throughout India and these, though incomplete, indicated that, excluding some railways and Government concerns generally, no fewer than 348,000 workers were housed by employers. Over 700 employers provided doctors and dispensaries and about 300 maintained schools for employees or their children. They all knew that the death-rate of children under a certain age was high in India compared with this country, but it was not so generally known that the death-rate in those cities had been steadily decreasing, and the critics of the Government and of employers in India usually found it convenient utterly to ignore the other factors which came into the question of the infant death-rate beside those of housing and economic conditions, such factors as customs and traditions of the people, the marriage age, and the like. Every impartial observer who went among the people, and every doctor who attended them, knew their influence. He had already said that these customs had incurred condemnation, and indeed, castigation of prominent Indians in the Assembly and elsewhere; he would leave it at that, for it was really a question for Indians to deal with themselves. In these matters the Government could only advise and reform, where advice and reform were likely to be accepted by the communities concerned. It would be quite wrong to suppose that in any eastern country there

was the same urge for any authority, Government or local, to act as there was in Westminster. Anyone who believed the contrary was believing something which was utter nonsense. He might refer to what had been done for social service by such institutions as the Social Service League of Bombay, run very largely by Indians. He knew most of the people who ran it and very good work had been done by them. He might refer to what had been done by dispensaries for the supply of medicine and things of that kind, but he could only say that a great deal had been done. As regarded the recruitment for the services, he was able to report that the improvement which he noted last year had been continued. It was moving upwards in a steady curve. Last year 93 Europeans entered for the Indian Civil Service examination and this year the number was 112. It was a satisfactory feature that a number of Europeans had chosen the Indian Civil Service in preference to a career in the Home Civil Service. As regarded the army, the position there was better than it was when he last had occasion to deal with these estimates. It had been slowly but steadily improving, though they were not yet in the same happy position as they were in the matter of recruitment for the Civil Service, and they were not yet getting as many young officers as they required to maintain the establishment of the Indian army. The whole position was being very carefully watched by the Government of India and the Secretary of State, and all necessary measures would be taken to ensure that the recruitment of the British officers in sufficient strength would be adequately maintained in the future.

Sir RICHARD LUCE raised the question of the Indian Medical Service. He said he gathered that the long negotiations and the long consideration of the future of that Service were now almost completed. It was now over three years since the Lee Commission on the superior services reported on those services, and although the findings of that commission were largely implemented with regard to the other services they were left on one side with regard to the Indian Medical Service. He wished to refer to what was the very unsatisfactory condition of the present recruitment of that Service. From certain figures which had been supplied to him he found that at the present time there was a loss in the last five years of British medical officers in the Indian Medical Service of 61. That was an average of 12 British medical officers per year for the last five years. The present strength of the British members of the Indian Medical Service was 489 and that of Indians 158, to whom must be added 138 temporary Indian medical officers, leaving the proportion 1·6 British to one Indian. He understood from his noble friend that it had been laid down that for the efficient working of the Indian Medical Service there should be at least a proportion of two British to one Indian officer, and with the yearly loss of 12 officers that proportion which was already reduced to 1·6 to 1 must very rapidly deteriorate. It was laid down by the Lee Commission that it was necessary to maintain the definite proportion in the Indian Medical Service of British to Indian officers for two very important purposes, one of which was that the European officers serving in India as members of the Indian Civil Service and their families should have the advantage of having British medical officers attending them when they were ill. That seemed to him important and it was the idea of the Lee Commission. It was one of the ideas for the carrying on of the Indian Medical Service by British officers. The other requirement that was necessary was that there should be a sufficient reserve of British officers for the Indian army. That reserve was called upon to its very last ounce in the Great War, and it was absolutely essential if they were going to have the Indian army serve with the British forces wherever that might be that they should have a sufficient proportion of British medical officers among them to bring about a proper state of efficiency in that Service. Therefore it seemed to him that they were in a position of very considerable gravity with regard to the Indian Medical Service at the present time. They had already a proportion of British to Indian officers which was considerably below the proportion which was considered necessary for the efficient work of that Service, and they had further a very rapid rate of diminution on that percentage.

With regard to what might be the causes of the unpopularity—which was quite obvious—of the Indian Medical Service he was not able to say. There was, however, at the present time an unwillingness on the part of young doctors to go into any service abroad. Whether that was due to the loss of the spirit of adventure, or whether that spirit had been exhausted by the Great War, he could not say, but the fact remained that they had a very great difficulty in getting into the medical service, whether in the Army, Navy, Air Force, or the Indian forces, suitable medical candidates. He had gone carefully into the question whether that could have any connexion with the rates of pay, or the conditions of service, but he did not believe that it was at all due to that cause. The pay in the Indian Medical Service and the conditions of the Service compared favourably with the conditions in the other medical services at home. He thought that the great cause, apart from the one to which he had referred, was the spirit of uncertainty as to the future of the Service which they were joining, and he believed that if steps could be taken to get over that uncertainty, which was due to the very long delay in bringing to completion the negotiations as to the future of the Service, confidence would be restored and there would be a considerable possibility of getting recruits in future. If a campaign could be undertaken by the Government at the present time, and if the Under Secretary himself would visit some of the hospitals or encourage some of the officials who happened to be at home to go to the various hospitals in England to show the students that there was an assured future—which he believed was the case—for young medical men who joined the Indian Medical Service, a great deal could be done to get over the difficulty and to ensure a satisfactory recruitment. If he would undertake that he was sure that the noble lord would receive the support of the whole of the medical profession in England who looked with grave disquiet upon the unsatisfactory state of the Indian Medical Service.

Progress was reported and the debate was adjourned.

MONDAY, JULY 11TH.

Pension Rights of Indian Provincial Officers.

Mr. WARDLAW-MILNE asked the Under Secretary of State for India whether, now that orders had been issued by certain of the local governments extending to certain of the provincial service officers of non-Asiatic domicile some of the concessions recommended in the Lee Commission report, the question of the extension of the concessions to include the right to retire on proportionate pension would be considered.—Earl WINTERTON replied: My noble friend is not prepared to extend the right to retire on proportionate pension beyond the All-India services to whom the premature retirement rules apply, but he has directed the Government of India to notify local governments that he will be prepared to consider on their merits, as cases falling outside the rules, applications for permission to retire prematurely from officers serving under local governments who either (1) were appointed by the Secretary of State in Council, or (2) were appointed by a subordinate authority, but in the local government's opinion are deserving of special consideration.

TUESDAY, JULY 12TH.

Experiments of Dr. Voronoff.

Sir ARCHIBALD SINCLAIR asked the Secretary of State for Scotland whether his attention had been drawn to the experiments of Dr. Voronoff, who claimed greatly to have increased the size of sheep and wool production by gland operations; and whether the Board of Agriculture proposed to make any inquiry into these claims.—Mr. MACROBERT (the Solicitor-General for Scotland) replied: Yes, Sir. My right hon. friend is aware of the work of Dr. Voronoff. The Ministry of Agriculture, in conjunction with the Board of Agriculture for Scotland, propose to carry out an expert investigation of these experiments during the autumn.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Capt. A. R. H. Skey to be Surg. Rear-Admiral and is placed on the retired list.

Surg. Capt. H. C. Whiteside to be Surg. Rear-Admiral.

Surg. Comdr. P. D. Ramsay is placed on the retd. list with rank of Surg. Capt.

ROYAL ARMY MEDICAL CORPS.

ARMY DENTAL CORPS.

Lt. G. A. Ballantyne (Temp. Flying Offr., R.A.F.) to be Capt.

ARMY RESERVE OF OFFICERS.

Capt. S. Robertson relinquishes his commn., and retains the rank of Capt.

DENTAL OFFICERS IN THE ROYAL NAVY.

The undermentioned were successful in the competition held on June 29th and succeeding days, for entry into the Royal Navy as Dental Officers, and will receive appointments as Acting Surgeon Lieutenants (D): Henry Arthur Ginn (Guy's Hospital), Harold Edward Rose (King's College Hospital), George Blackbarrow Fellows Reece (Royal Dental Hospital of London), Louis Victor Donegan (Incorporated Dental Hospital of Ireland), Herbert Vincent Pell (Royal Dental Hospital of London).

The King, on the occasion of the visit of the Duke and Duchess of York to New Zealand and Australia, has promoted Surg. Comdr. H. E. Y. White, M.V.O., O.B.E., R.N., Medical Adviser to His Royal Highness, to Commander of the Royal Victorian Order.

Medical News.

UNIVERSITY OF OXFORD.—At recent examinations the following candidates were successful in the undermentioned subjects :—

B.M. AND B.CH.

Medicine, Surgery and Obstetrics.—H. W. Allen, E. N. Butler, Rosalind V. Carruthers, C. Charleson, P. F. Cluver, C. L. Cope, W. N. Dickenson, J. L. Glover, R. C. Probyn-Williams, J. W. Pugh, and Irene M. Titcomb.

Pathology.—H. S. Atkinson, M. V. Bhajekar, B. R. Caygill, R. T. V. Clarke, T. L. Davies, S. B. Davis, A. J. Gibbs, H. P. Gilding, J. L. Glover, G. G. Hill, Florence H. Johnson, Caroline E. MacNeice, Q. St. L. Myles, R. C. Probyn-Williams, J. G. Reid, S. Segal, D. C. Shields, E. E. Swaby, W. J. Walter, and Joyce Wright.

Forensic Medicine and Hygiene.—D. H. Brinton, J. A. Brown, E. N. Butler, Rosalind V. Carruthers, T. L. Davies, S. B. Davis, J. L. Glover, G. G. Hill, A. P. Kingsley, R. L. P. Peregrine, and Irene M. Titcomb.

Materia Medica.—R. E. Adam, Annie Adams, G. Ashton, J. H. B. Beal, J. A. Brown, B. R. Caygill, J. L. Clapham, F. R. Crookes, W. T. Dawson, R. C. Garman, A. J. Gibbs, J. M. Gibson, T. N. Gledhill, W. H. Greany, R. M. J. Harper, H. M. Harris, A. L. Jacobs, J. M. Lees, W. H. McMenemey, G. B. Malone-Lee, W. H. Owles, J. H. Peel, J. G. Reid, C. R. Salkeld, D. C. Shields, and C. Wilson.

It is announced that John Hugh Bruce Beal, scholar of University College, has been elected to the Radcliffe Scholarship in Pharmacology, 1927.

The Theodore Williams Scholarship in Physiology has been awarded to A. L. Jacobs, Jesus College, and A. W. D. Leishman, University College, whilst the Theodore Williams Scholarship in Human Anatomy has been awarded to F. M. Trefusis, Exeter College, and M. W. C. Oldfield, University College. R. Pakenham Walsh, University College, receives the Welsh Memorial Prize for Anatomical Drawing.

UNIVERSITY OF ABERDEEN.—At a Graduation held on July 7th the following degrees and diplomas were conferred :—

D.Sc.—C. Reid, M.D., and J. Smith, M.D.

M.D.—*N. C. Simpson, J. T. Cameron, Maggie Florence Jane Moir, F. H. B. Norrie, H. G. Topping, and J. M. Whyte.

Ch.M.—M. M. Cruickshank.

* Awarded honours for thesis.

M.B. and Ch.B.—G. N. Clark, †G. M. Dean and ‡A. W. Forrest, Flora Leslie Baxter, W. J. Brenmer, Frances Elizabeth Bruce, Joan Gordon Thain Dunbar, R. T. Easton, A. F. Emmanuel, W. H. Emslie, J. B. Ewen, A. D. Forgie, O. M. Fraser, A. J. Gardiner, H. B. Giles, H. R. Harris, A. W. Henderson, E. A. Johnston, W. E. Johnston, J. W. Lyall, L. C. Lyon, W. C. McIntosh, D. B. Mackenzie, Mary Meta Mackenzie, I. Mackintosh, R. G. A. McLaren, E. W. Malcolm, A. W. Michie, G. Milne, J. W. Mitchell, W. E. Morrison, M. van Niekerk, J. Pennie, D. C. Rice, J. A. G. F. Rose, J. A. Sharkey, ‡R. G. Spink, R. D. Stuart, M. G. de L'Isle Sturm, ‡A. E. Thomson, ‡J. G. Thomson, W. R. Topping, A. W. West, and W. M. Wilson.

D.P.H.—F. J. T. Bowie, S. V. van Niekerk, A. D. Rankin, Margaret Elizabeth Rankin, and W. D. Whamond.

† Completed Final Medical Professional Examination with much distinction.

‡ Completed Final Medical Professional Examination with distinction.

UNIVERSITY OF MANCHESTER.—Dr. H. B. Maitland has been appointed professor of bacteriology and director of the department of bacteriology and preventive medicine in succession to Prof. W. W. C. Topley.

Dr. Maitland graduated in medicine and surgery in the University of Toronto in 1916 and obtained the degree of M.D. by thesis in 1922. He qualified as M.R.C.S. Eng. in 1918. From 1917 to the end of 1918 he served in the Royal Navy as surgeon-lieutenant, and from 1919 to 1921 was lecturer in bacteriology in the University of Toronto. In 1921 he was appointed associate professor in that university and occupied this position until 1924. After six months spent in visits to the principal bacteriological departments in Germany, he was appointed early in 1925 to assist in the research upon foot-and-mouth disease, later taking charge of the investigations done for the Commission. He was subsequently elected to the staff of the Lister Institute, where he is at present engaged upon research.

At recent examinations the following candidates were successful :—

FINAL EXAMINATION FOR M.B. AND CH.B.

Dorothy Arning, H. Arstall, A. H. Baker, R. H. Barnes, R. H. Blackburn, Dorothy M. Bradley, H. J. Brennan, J. W. Brooks, Lillie M. Burton, Louie J. Burton, Muriel M. Edwards, J. S. Goller, A. Hancock, Zaky Hanna, † G. Metcalfe, R. Newton, G. L. Normington, R. P. Osborne, H. A. Palmer, L. C. Peringuey, † G. H. Racklyeft, Norah Regan, M. Robinson, Eleanor B. Schill, A. Thomas, R. H. Tootill, H. Townley, Vera Urmson, F. F. Waddy, G. R. Walker, Josephine Walmsley, and *K. H. Watkins (with second-class honours).

* Distinction in Medicine.

† Distinction in Forensic Medicine.

The following have satisfied the examiners in the undermentioned parts of the examination :—

Forensic Medicine.—S. K. Appleton, Doris Bernard, R. Edmondson, and J. H. Jones.

Hygiene and Preventive Medicine.—R. S. Abraham, S. K. Appleton.

Obstetrics and Surgery.—S. K. Appleton, H. J. Brennan, E. H. Brooks, Agnes M. Buckley, E. Cretney, E. B. Davies, Mary G. Davies, Dorothy Guest, G. B. Hardman, Amy H. Herbert, J. A. Longworth, Jean M. Marshall, J. W. Murray, J. R. Nuttall, J. F. O'Grady, S. L. Rowley, Lucy Stokoe, A. Thomas, R. H. Tootill, Vera Urmson, J. Vine, and G. R. Walker.

Obstetrics.—D. E. Francis and Kathleen McGowan.

THIRD EXAMINATION FOR M.B. AND CH.B.

Pathology.—W. S. Ramsden.

Pharmacology.—W. W. Fox and A. Taylor.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

Mary C. Luff.

DIPLOMA IN BACTERIOLOGY.

N. A. Arnold, Phyllis M. Congdon, Margaret Pownall, W. Smith.

DIPLOMA IN PUBLIC HEALTH.

Part I.—W. C. V. Brothwood, J. Cumming, Miriam Florentin, T. S. Hanlin, H. Harrison, Fanny Howe, M. V. Menon, T. Pierson, Marjorie Reekie, and S. P. Wilson.

UNIVERSITY OF LIVERPOOL.—At recent examinations the following candidates were successful :—

M.D.

W. Emdin, S. M. Katz, and J. A. Scott.

M.B. AND CH.B. (WITH HONOURS).

Class I.—W. S. Brindle, J. McHugh, S. P. Meadows, and A. D. Polonsky.

Class II.—J. K. Cameron, A. Dodd, P. H. Whitaker, and R. L. Wynne.

FINAL EXAMINATION FOR M.B. AND CH.B.

Part III.—T. Blezard, J. H. Boultbee, H. C. Calvey, K. M. Cobban, E. Cohen, F. R. Craddock, W. J. Eastwood, L. S. Goldman, J. G. Hattingh, H. E. Hughes-Davies, E. D. Irvine, O. V. Jones, Theresa J. Lee, J. L. Lewis, F. E. Lomas, J. W. Melville, E. P. Moloney, Edna Morris, C. Rigby, N. W. Riley, J. B. Rushton, Alfreda H. Slater, V. J. M. Taylor, J. P. Thomas, D. P. de Villiers, A. J. Walsh, and E. N. Wardle.

Part II.—S. Alstead, E. T. Bates, R. K. Bowes, J. H. St. B. Crosby, T. B. Davie, R. Doyle, H. R. Dugdale, J. P. Flanagan, J. H. Follows, Agnes G. Gillespie, R. G. Gornall, E. W. Jones, Mary G. Jones, W. E. J. Jones, N. R. Lawrie, J. M. Leggate, H. Leiper, J. S. Mather, C. T. Mercer, Winifred O'Callaghan, H. Paterson, E. L. Rubin, H. W. Smith, G. G. Warburton, and F. J. Welton.

Part I.—A. E. Adams, S. W. Adler, A. E. Carrol, E. Cook, J. E. Jones, N. W. Roberts, G. A. Talwrn-Jones, and A. L. Williams.

DIPLOMA IN PUBLIC HEALTH.

Eudora V. Beatty, Helen S. H. Brown, M. S. Grutu, R. C. Gubbins, and Isabel McKee.

DIPLOMA IN TROPICAL HYGIENE.

C. P. Allen, G. A. Dunlop, J. Harkness, R. Hay, Kathleen Hyslop, J. Macdonald, A. J. Murray, H. M. Nevin, and R. Walkingshaw.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on June 22nd it was resolved to institute an academic diploma in bacteriology, the regulations for which may be had from the Academic Registrar.—The University studentship in physiology for 1927–28 was awarded to Mr. H. B. A. R. Densham, B.Sc., of Guy's Hospital, who proposes to complete his medical course and to continue investigations on the circulation through the skin and on cardiac dyspnœa which he is carrying out under the direction of Prof. Pembrey.—The University medal at the M.B., B.S. examination held in May, 1927, has been awarded to Max Barer, of University College Hospital.—Applications are invited for the William Julius Mickle Fellowship, of the value of at least £200, which is awarded annually to the man or woman who, being resident in London and a graduate of the University, has in the opinion of the Senate, done most to advance medical art or science within the preceding five years. Applications must be made in form to the Principal Officer of the University not later than Oct. 1st.

University College.—In connexion with the centenary of Universty College a fund of £500,000 is being raised to meet the need for further endowment, and for buildings and equipment. The amount raised up to June 18th is £117,440, which includes about £43,000 contributed by past and present students, and a grant of £25,000 by the Rockefeller Foundation for the endowment of the Department of Pharmacology. The same Foundation has also allocated £93,178 to form a further endowment fund, supplementary to that of 1921, for the Departments of Anatomy and Physiology, the work and progress of which have necessitated a larger expenditure than was anticipated in 1921.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the annual election of Fellows into the Council held on July 7th, the President, Sir Berkeley Moynihan, presiding, there were nine candidates for three vacancies. The following is the result of the election: Sir Cuthbert Wallace (489 votes) and Mr. William Thelwell Thomas, M.B.E. (475) votes, were re-elected, and Mr. Hugh Lett (366 votes) was elected a member of the Council. The unsuccessful candidates were: Mr. L. P. Gamgee (344 votes), Mr. C. C. Choyce (328 votes), Sir Crisp English (314 votes), Mr. J. P. Lockhart-Mummery (224 votes), Mr. H. J. Paterson (158 votes), and Mr. H. W. Carson (153 votes). Mr. H. J. Price and Mr. Wilmott Evans acted as scrutineers.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—A reception was held at the College on Friday evening, July 8th, in celebration of the centenary of the discovery of Bright's disease. The President, with Lady (Rose) Bradford, received the guests in the library, among whom were the official representatives of the various countries present in London to do honour to Bright's memory. In the theatre an interesting exhibition was given of cinematograph films by the Provincial Cinematograph Theatres, Ltd., the films provided being demonstrations in natural history, such as the evolution of the caddis and may-flies, the life story of a puss-moth, and the life contents of a wineglass aquarium. Refreshments were served in the reading-room, and the College was crowded till a late hour.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Friday, July 22nd, at 5 P.M., at the Royal Westminster Ophthalmic Hospital, Mr. W. H. McMullen will give a lecture-demonstration on Some Causes and Effects of Defective Vision in Children. This will be free to all members of the medical profession. During August there will be two special courses. The first, at the Infants Hospital, Vincent-square, will be from August 8th to 21st, from 2 P.M. daily, in Diseases of Infants. On both Saturdays and one Sunday special visits have been arranged. (Fee for the course, £3 3*s*.) The second course, from August 29th to Sept. 10th, will be held at the Queen Mary's Hospital for the East End, Stratford, and will occupy most days from 10 A.M. to 5 P.M. It will include demonstrations of medical, surgical, orthopædic, ophthalmic, obstetric, and ear, nose, and throat cases, besides operations and lectures. (Fee, £3 3*s*., or £2 2*s*. for either week.) Besides these special courses, there is always the general course of work in the associated hospitals. For this a comprehensive ticket is issued for any period from one week to one year, and the post-graduate is left to make up his time-tables from the programme of clinics given. Copies of all syllabuses are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W., who can supply information on post-graduate work in London and the provinces.

BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH.—At a recent meeting of the trustees, Dr. H. H. Dale, secretary of the Royal Society, was appointed a member of the advisory board in place of the late Prof. E. H. Starling. Sir James Kingston Fowler (hon. secretary) presented the annual report, in which reference was made to the increase of the annual value of the Fellowships announced last March. As from Oct. 1st, their value will be: Junior Fellowships, £400; Fourth Year Fellowships, £500; and Senior Fellowships, £700. Mention was also made of the trustees' decision to institute a Research Fellowship in Tropical Medicine of the annual value of £1000 and tenable for five years. This has been awarded to Mr. Edward Hindle, Ph.D., who was an original Beit Fellow (1910–12) and served with the Kala-azar Commission of the Royal Society to North China (1925–27). He will work on spirochætosis, with special reference to the causation of yellow fever. A Junior Fellowship in Tropical Medicine has been awarded to Dr. Henry Pollard Hacker, who will work on problems in the prevention of malaria. Mr. Alan Sterling Parkes, Ph.D., Miss Honor Bridget Fell, Ph.D., and Miss Margaret Averil Boas, Ph.D., have been promoted from Junior Fellowships to Fourth Year Fellowships, and Mr. William Kershaw Slater, M.Sc., has been promoted from a Fourth Year to a Senior Fellowship. The following appointments to Junior Fellowships are announced for research in the subjects indicated: Frank Robert Winton, M.D. Camb., assistant to the Department of Pharmacology, University College, London: (*a*) Urinary secretion; (*b*) Physiology of plain muscle. Walter Reginald Wooldridge, M.R.C..V.S., Frank Smart Student at the Sir William Dunn Institute, Cambridge: Bacterial chemistry in relation to immunity. Walter Thomas James Morgan, M.Sc., Biochemical Research Student at the Lister Institute, London: Structure of hexose phosphoric acids. Philip Eggleton, M.Sc. (University College, London), working for the Medical Research Council: Carbohydrate metabolism of contractile tissues; comparison of different types of contractile tissue. Guy Frederic Marrian, M.Sc., assistant in Department of Physiology, University College, London: Vitamin B; the adrenal glands. Archibald Roderick Fee, B.A., engaged in research at University College, London: Renal metabolism. Mr. Francis William Rogers Brambell, who was nominated for a Fellowship, withdrew shortly before the election, having received an offer of a teaching post at a university.

Correspondence concerning the Fund should be addressed to the hon. secretary, Beit Memorial Fellowship, 35, Clarges-street, London, W.1.

MANCHESTER ROYAL INFIRMARY.—The James Bathgate Dickinson Scholarships have been awarded to Dr. R. W. Fairbrother (Travelling Research Scholarship in Medicine), Dr. F. H. Smirk (Scholarship in Pathology), and Dr. F. Livesey (Scholarship in Anatomy).

INTERNATIONAL HOMŒOPATHIC CONGRESS.—This congress will be held in London next week. A meeting will take place at the Mansion House on Monday, July 18th, at 5 P.M., and there will be daily sessions at the Connaught Rooms, Great Queen-street, W.C. 2. The organising secretary is Dr. H. Fergie Woods, 93, Harley-street, W. 1.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
TUESDAY, July 19th.—5.30 P.M., GENERAL MEETING OF FELLOWS: Ballot for election to Honorary Fellowship.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, July 18th, to SATURDAY, July 23rd.—FELLOWSHIP OF MEDICINE DEMONSTRATIONS. Fri., 5 P.M., Mr. W. H. McMullen on "Some Causes and Effects of Defective Vision in Children" at the Royal Westminster Ophthalmic Hospital. Open to all members of the medical profession without fee.—PARK HOSPITAL, Hither Green, S.E. Post-graduate course in Infectious Fevers. Wed., 2.30 P.M., and Sat., at 11 A.M.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Lecture-demonstrations daily, 5 P.M., throughout the month. Further information from the Secretary.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, July 18th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.
WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, July 19th.—3.15 P.M., Dr. C. Gouldesbrough: The Scope and Limitations in Modern X Ray Therapy.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.
MONDAY, July 18th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Donald Armour: Operations.
TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 3 P.M., Dr. Pritchard: Medical Wards.
WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Mr. Gibb: Eye Department.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Sir Henry Simson: Gynæcological Ward.
FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Operations. Mr. Vlasto: Throat, Nose and Ear Department.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward List. 10 A.M., Dr. Owen: Medical Diseases of Children.
Operations, Medical, Surgical, and Special Out-patients daily, 10 A.M. to 5 P.M.; Saturdays, 10 A.M. to 1 P.M.

Appointments.

CAPPS, FREDERICK C. W., F.R.C.S. Eng., has been appointed Surgeon to the Ear, Nose and Throat Department, with charge of Out-patients, Willesden General Hospital.

FERGUSON, D., M.B., Ch.B. Glasg., Medical Officer of Health for the Burgh of Motherwell and Wishaw.

OWEN, DAVIES CHARLES, M.B., B.S. Lond., F.R.C.S. Eng., Honorary Assistant Surgeon at Stanley Hospital, Liverpool.

Certifying Surgeons under the Factory and Workshops Act: McCOOL, P., M.B., Ch.B. Edin. (Chepstow); JEFFERIS, I. M., L.R.C.P. Lond., M.R.C.S. (Totnes).

Medical Referees under the Workmen's Compensation Act (Metal Grinding Industries (Silicosis) Scheme): NAISH, A. E., F.R.C.P. Lond., BARNES, A. E., F.R.C.P. Lond., MACADAM, W., M.D. Glasg.; MARSDEN, R. W., M.D. Manch.; DICKINSON, W. H., M.D. Edin.; HEASMAN, H. W., L.R.C.P. Lond., M.R.C.S.; and BALL, L., M.D. Lond.

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal United Hospital.—Asst. H.S. £100.
Beckenham Urban District Council.—M.O.H. and School M.O. £900.
Bedford County Hospital.—Asst. H.S. £130.
Bolton, Townleys Hospital, Farnworth.—Second A.M.O. £225.
Bradford Royal Infirmary.—Two H.S.'s. £150 each.
Brighton, Royal Alexandra Hosp. for Sick Children.—H.P. £100.
Buxton, Devonshire Hospital.—A.H.S. At rate of £150.
Cambridge, Papworth Sanatorium and Village Settlement.—H.P. At rate of £100.
Elizabeth Garrett Anderson Hospital, Euston-road.—Asst. Obstet.
Evelina Hospital for Children, S.E.—H.S. £120.
Exeter, Royal Devon and Exeter Hospital.—H.P. At rate of £130. Also Hon. Surg. Dentist.
Hertford County Hospital.—H.S. At rate of £150.
Hull Royal Infirmary.—Asst. H.S. £150.
Ilford Borough.—Chief Asst. M.O.H. £700.
Indian Medical Service.—Appointments.
Lewisham Hospital.—Asst. M.O. £300.
Liverpool Eye and Ear Infirmary.—H.S. £100.
Manchester, Ancoats Hospital.—Pathological Registrar. At rate of £100. H.P. At rate of £100.
Manchester Hospital for Consumption.—Hon. Anæsthetist.
Manchester City.—Asst. Tuberculosis Officer. £650.
Royal Free Hospital, Gray's Inn-road, W.C.—First and Second Cas. Officers.
Royal Northern Hospital, Holloway.—Med. Registrar. £100.
Royal Waterloo Hospital for Children and Women.—Hon. Radiologist. Hon. Gynæcologist.
St. Mary's Hospital for Women, Plaistow.—R.M.O. and A.R.M.O. £175 and £130 respectively.
Salford Education Committee.—Asst. School Med. Officers. £600 each.
Samaritan Free Hospital for Women.—H.S. At rate of £100. Also Hon. Surg.
Sheffield Royal Hospital.—Res. Ophth. H.S. At rate of £80.
Sheffield Royal Infirmary.—Hon. Asst. Ophth. S.
Staffordshire General Infirmary, Stafford.—H.P. At rate of £150.
West London Hospital, Hammersmith-road, W.—Res. Asst. S. £200.
Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.

Births, Marriages, and Deaths.

BIRTHS.

BLIGH.—On July 10th, at 74, Rodney-street, Liverpool, the wife of John Murray Bligh, M.D. Liverp., M.R.C.P. Lond., of a son.
KIDD.—On July 5th, at Leeds-road, Harrogate, the wife of W. Shirley Kidd, M.B., B.S., of a son.
MILLIGAN.—On July 4th, at Belle-avenue, Reading, the wife of H. J. Milligan, *M.C.*, M.D., of a son.
MORRIS.—On July 5th, at the Rectory, Stradbally, Co. Waterford, Irish Free State, the wife of Major C. R. Morris, D.S.O., R.A.M.C., of a daughter.
ROBERTS.—On July 5th, at a nursing home, Darlington, the wife of David R. E. Roberts, M.B., B.Ch., of a daughter.
THOMAS.—On July 4th, at Lancaster Gate, W., the wife of Dr. Cyril J. Thomas, of a son.

MARRIAGES.

GILCHRIST—SAMPSON.—On July 5th, at All Souls', Langham-place, London, W., Adam Gilchrist, M.B., Ch.B. Aberd., of Burslem, Staffordshire, to Winifred Mary Sampson, M.B., B.S. Lond.
HUNT—NICHOLAS.—On July 6th, at Southwark Cathedral, William Stanley Hunt, B.Chir. Camb., to Jane Gwyneth, eldest daughter of Mr. and Mrs. John Nicholas, of Llandovery.
MOORE—FERGUSSON.—On July 4th, at the Parish Church, Bushey, Richard Henry Moore, M.B., B.Ch. Belf., of Upper Wandle House, Wandsworth, to Helen Edith Fergusson, M.B., B.S. Lond.

DEATHS.

BAYLISS.—On July 6th, at Mountnessing Weston, Bath, Richard Arthur Bayliss, M.R.C.S. Eng., L.R.C.P. Lond., aged 60.
CAMPBELL.—On July 10th, at Clarendon-terrace, Dundee, Alexander Campbell, M.D., F.R.C.S., in his 86th year.
HULKE.—On July 1st, in London, Frederick Malcolm Stirling Hulke, M.R.C.S. Eng., L.R.C.P. Lond., aged 39.
SMYTH.—On July 2nd, at Apsley-road, Clifton, John Smyth, M.D., Colonel, I.M.S., aged 69.
THOMAS, THELWALL.—On July 7th, 1927, at Verdala Tower, Allerton, Liverpool, Anabel Roxburgh, the wife of W. Thelwall Thomas, Surgeon, and daughter of the late Alexander Spence, of Huntly, Aberdeenshire.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

PUBLIC HEALTH IN SHANGHAI.

IN a recent account of the health of the British troops in Shanghai (THE LANCET, 1927, i., 1319) mention was made of the work being done by the municipal department of public health. This department has now published its annual report for 1926, containing a review of the sanitary conditions prevalent in the foreign settlement. At Shanghai there are, on the one hand, over 800,000 Chinese and 23,000 foreigners living under the ægis of a well-ordered international municipal council; on the other, a larger mass of natives (1,150,000) living in overcrowded insanitary conditions under Chinese jurisdiction. A comparison of the two systems shows a glaring inequality.

The two leading features of the year were an exceptionally hot and humid summer with a rainfall of 51·89 inches and an outbreak of cholera which became epidemic during July, when it reached its peak, 692 cases being notified. Virulent scarlet fever occurred throughout the year, and small-pox prevailed till the end of July, after which, curiously enough, not another case was notified. Shanghai maintained its freedom from plague epidemic; one plague-infected rat was found and, as in former years, no time was lost in carrying out intensive anti-plague measures. There were two fatal cases of anthrax, attributed to cheap shaving-brushes.

The deaths of 615 foreigners were reported, giving a rate of 20·12 per 1000 as compared with 16·24 in 1925. The majority of the deaths (62·9 per cent.) occurred among Asiatics other than Chinese, 55·4 per cent. being Japanese. The principal communicable diseases accounting for the increased death-rate were typhoid fever, amœbic dysentery, acute diarrhœa, small-pox, scarlet fever, and measles, a noteworthy feature being the great increase of deaths among children between the ages of 1 and 5 years. Altogether 12,326 Chinese deaths were recorded, compared with 8936 in 1925, giving a death-rate of 15·35 per 1000, the highest rate since 1914. This points to the fact that Chinese are the prey of adverse climatic conditions to the same extent as foreigners.

The report gives a number of detailed statistical tables showing the close track that is kept of the incidence of disease and the causes of death. Every effort has been made to obtain the compulsory registration of medical practitioners, of whom there are 145 (including 24 British), but the council has as yet no legal authority to enforce this. A system of voluntary registration has been evolved by the help of which the public health department can have more definite information as to the number of births and deaths and the notification of communicable diseases; 713 cases of notifiable diseases among foreigners were reported voluntarily.

As is well known small-pox is endemic in China, but though frequent warnings are issued concerning the serious danger of bringing unvaccinated employees to the East, this advice is often ignored. A total of 48,824 vaccinations was performed by the public health department and there were 38 cases of small-pox among foreign residents with 12 deaths; eight of those who died had not been vaccinated, one had been vaccinated in 1901, one was vaccinated three days before the onset of the disease, whilst in the remaining two cases there was no reliable history. There were 31 deaths from typhoid and paratyphoid among foreigners, besides 20 fatal cases of amœbic dysentery and seven of bacillary dysentery; 27 cases of diphtheria and 132 cases of scarlet fever among foreigners were notified, and in both diseases it was observed that the outbreaks were most prevalent from January to June and waned with the advent of hot weather.

Cholera has been prevalent 14 times during the past 24 years, but shows no evidence of cyclical periodicity. It is noteworthy that when absent in Shanghai it has been epidemic in other parts of China, notably in districts affected by famine. Cholera is endemic in the Yangtze Delta, a vast plain several thousand square miles in extent, with a population of over 20 million people, Shanghai being the most thickly populated area in the Delta. A network of tidal and semi-tidal creeks drains into the Huangpu River on the banks of which Shanghai is situated and the difficulties of the situation are thus greatly enhanced, for the International Settlement is completely surrounded by territory over which it has no jurisdiction. Altogether 3216 cases were notified and of this number 76 were among foreigners, and in 57 the diagnosis was confirmed by bacteriological examination. The most intense focus of infection in the International Settlement adjoined the Chinese district of Chapei. The water-supply of the Chapei Waterworks Company came under suspicion and samples from the intake, the filter beds, and the taps from the mains were

examined in the municipal laboratory of the International Settlement. In every case cholera vibrios were found to be present. Prompt measures for the purification of the Chapei water-supply were immediately followed by decline of the epidemic.

Of 228 specimens of blood examined for malaria only 31 gave positive results; all the parasites found belonged to the benign tertian group. This disease seems to be uncommon in Shanghai, but with the advent of so many troops from India this year it will be interesting to note if there is any increase in malarial infection, and if malaria of other types will become manifest when the mosquito season begins this month.

A large number of chemical (2905) and bacteriological (10,206) analyses and examinations were made. Water, milk, foods, and liquors are frequently tested for purity. The report concludes with accounts of the hospitals, gaols, and markets which come under the purview and close supervision of the Commissioner of Public Health, Dr. C. Noel Davis, and his staff. Of recent years there have not been wanting signs that the Chinese authorities have been willing to learn the lesson at their doors as to the benefits arising from efficient public health measures, but the frequent changes of Government have, for the present at any rate, resulted in a state of chaos in which there is neither time nor room for any thought about the health of the people outside the Settlement.

THE TRAINING OF DEFECTIVE CHILDREN.

ON July 5th Madame Montessori gave a lecture in Italian —which was translated by an interpreter—on the Training of Defective Children, in aid of the Royal Free Hospital Appeal Fund. In her opening words the lecturer stressed the fact that the education of the mentally deficient child did not differ fundamentally from that of the normal one. She explained how her own research had been undertaken first on behalf of the mental deficients, and how many of the discoveries she had made, such as the importance of touching and handling as aids to learning, had proved of equal value to all. But whereas the normal child could learn and develop in spite of unfavourable environment, the mentally defective could not, just as the deaf child would also be dumb without specialised speech training. It was of particular importance to take advantage of the "sensitive periods" in the child's mental life, and to employ most careful and thorough indirect preparation for each step onwards throughout his education. Graphs were shown illustrating the progress of children in an institute under the Montessori system. These made it plain that a high level of achievement was maintained throughout, as distinct from the irregularity shown under other systems. Madame Montessori maintained that a high percentage of mentally deficient children were eventually capable of filling a useful place in the world.

WANTED—AN EXPLANATION.

To the Editor of THE LANCET.

SIR,—The case cited by Dr. A. T. Schofield in your issue of July 2nd (p. 52) interests me greatly, and I put forward what seems to me a quite feasible if not probable explanation. During the days following the accident the wound apparently went through the ordinary process of healing, with the usual subsequent formation of scar tissue. Normally the nail takes about nine months to grow from base to tip. I suggest that, in this case, as the nail grows forward the vis-a-tergo is not strong enough to force the nail onward against this obstruction of the fibrous barrier. The growth of the nail is thus arrested until the distal portion is shed. The distance of the lesion (about a quarter of an inch) from the tip of the finger determines the regular intervals of recurrence.

I am, Sir, yours faithfully,

E. HOPE JOHNSON, M.R.C.S.

West Middlesex Hospital, Isleworth, July 6th, 1927.

A USEFUL DIRECTORY.

WE are always glad to see an up-to-date copy of Webster's Royal Red Book, the 269th edition of which was published in January and the 270th in May. All possible care is taken, it is stated, to ensure correctness, and it is convenient not have to wait 12 months for a new issue. There is a street guide, an alphabetical list, and lists of Members of the House of Peers and House of Commons, of Government offices, and of public societies and institutions. A special feature is a large section containing plans of well-known London theatres. There are many useful advertisements in the handbook and a selected list of Royal Warrant holders; but we should hardly be likely to find among them such a one as we saw in the 1837 edition of Boyle's Court Guide (now incorporated with Webster's Royal Red Book) in which a man claimed the title of "Bug Catcher to His Majesty" (William IV.).

NATURAL SUN-THERAPY IN ENGLAND.

THERE is general agreement that exposure to the rays of the sun exerts a beneficial action upon surgical forms of tuberculosis. There is less unanimity about its value in pulmonary tuberculosis, and owing probably to the difficulty in selection of suitable cases, and the ease with which an overdose can be administered, sunshine is regarded in many quarters as useless or even harmful in the treatment of consumption. Experiments carried out by Dr. J. E. Wood at the Bramshott Sanatorium for Sailors have, however, led to such encouraging results that the Seamen's Hospital Society have decided to arrange for a further trial of the method. They have accordingly built and equipped a large ward, with walls of Vita glass, at their sanatorium, so that controlled sunning may be carried out at any time of day and at any season. Shelter from wind and shower is thus provided without restriction of the limited sunshine that this country enjoys. It is hoped that not only will the merchant seaman derive benefit therefrom, but useful data will be collected regarding the possibilities of using sunshine and skyshine in this country in all forms of tuberculosis and in all classes. The new ward will be formally opened by Admiral Sir Montague Browning on Monday next, at 3.30 P.M.

THALLIUM ACETATE.

IN the official bulletin for 1927 of the Department of Health of Mexico Dr. Margarita Delgado describes experiments to determine the effects of thallium salts on the animal body and especially their toxic dose, oral and hypodermic. The salt used was the acetate, mixed with some oxide; the mixture takes up water rapidly, which perhaps accounts for the differences in the toxic dose met with by various observers. Doses of 0·014–0·018 g. per kg. of body-weight were toxic to animals, but doses of 0·008 g., which is the maximum employed therapeutically, had no ill-effects. Doses of more than 0·014 g. per kg. were almost invariably lethal to rabbits and guinea-pigs, the main lesion being an acute tubular nephritis; with doses between 0·014 and 0·012 g. the animals lived for a time, but showed loss of weight, depression, vomiting, lowered temperature, and slow pulse, besides renal inflammation.

METEOROLOGICAL PORTENTS.

To the Editor of THE LANCET.

SIR,—Time was when meteorological portents influenced the world largely and the occurrence of eclipses or the presence of comets was assumed to be of the first interest in the affairs of the world. It is permitted to wonder whether the influence of these portents still remains. The tropical storm which visited London on Monday last fell on a date when certain world changes had been prognosticated to occur. First, a statement had been issued by a certain religious community that the Second Advent was due on July 11th; secondly, that date corresponds, or is believed to correspond, with some date foretold by the measurements of the Great Pyramid, and these measurements have been assumed to foretell great changes in the spiritual progress of the world; thirdly, July 11th was the date fixed for the opening of Joanna Southcott's box.

Obviously the information concerning the Second Advent was inaccurate; and as I am ignorant of pyramid lore and of what the revelations of Joanna promised, I cannot guess how far the promises have been followed by performances. But the contents of Joanna's box must have blown on her reputation as a religious seer, assuming that any shred of that reputation was remaining.

I should be greatly interested to learn if there has been noted any marked disturbance in the mental condition of patients either in our lunatic asylums, in our hospitals, or under private care, owing to the fact that on the date when vast and various events were anticipated by romantic persons the portent occurred of a sudden and furious storm. There is reason for thinking there may have been such cases.

I am, Sir, yours faithfully,

July 12th, 1927. METEOROLOGIST.

IN his annual report for the year 1926 Dr. F. J. Waldo, senior coroner for London, again remarks on the increase of deaths ascribed to anæsthetic ether. He suggests that an analyst's certificate of purity should accompany all ether sold for inducing narcosis. He points out the need for pure ether to be delivered to hospitals and anæsthetists in light-proof packings in order to prevent the formation of deleterious impurities; his impression is that the decomposition of ether under the influence of light is a point with which medical men are imperfectly acquainted. He repeats his recommendations of (1) compulsory notification to the coroner of all deaths under the influence of an anæsthetic wherever they occur, and (2) the nomination by the Home Office of a small research committee of experts to coöperate with coroners in inquiries regarding death under the influence of an anæsthetic.

THE LANCET

No. 5421. LONDON, SATURDAY, JULY 23, 1927. CCXIII.

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An Address
ON THE
STRATEGIC FRONT OF MEDICINE TO-DAY.

eing the Presidential Address delivered at the Annual Meeting of the British Medical Association at Edinburgh, on Tuesday, July 19th,

Y SIR ROBERT PHILIP, M.D., F.R.C.P. EDIN., LL.D., HON. F.R.C.S. EDIN.,
NORARY PHYSICIAN TO HIS MAJESTY IN SCOTLAND; PHYSICIAN CONSULTANT, ROYAL INFIRMARY, EDINBURGH.

[THE lecturer first briefly surveyed the three evious occasions on which the British Medical Asso ation had come to Edinburgh, calling attention to e links which connected Sir Charles Hastings with e city. He followed with an eloquent summary of ster's work and character, and continued :—]

If Listerism embodied the fruitful protest of a aster mind before the hecatombs which desecrated rgical practice in his time, Listerism did not stand one. Other influences were at work making for the tterment of national health. Lister was a mighty oneer. He was at the same time the expression his age. Side by side with the development of the volution in surgery there were indications of the ming wave of preventive medicine which, reinforced Listerism, was destined to advance with the tainty of a tide.

GRIM FEATURES OF COMMUNAL LIFE.

In the first half of the nineteenth century health nditions throughout the country afford in the wider nere striking parallel to the grim condition of spitalism which Lister found himself up against. Many pictures might be drawn from town and ntry. The state of matters in the metropolitan a about the time of Queen Victoria's accession y be described in the words of Dr. Southwood ith, physician to the London Fever Hospital, iting of the year which ended March 20th, 1838, l of the districts inhabited by the poorer classes, says: "Such is the filthy, close, and crowded te of the houses, and the poisonous condition of localities in which the greater part of the houses situated, from the total want of drainage, and the sses of putrefying matters of all sorts which are wed to remain and accumulate indefinitely, that, ing the last year, in several of the parishes, both eving officers and medical men lost their lives in sequence of the brief stay in these places which y were obliged to make in the performance of their ies. Yet in these pestilential places the industrious r are obliged to take up their abode; they have no ice; they must live in what houses they can get rest the places where they find employment. By prudence or forethought on their part can they id the dreadful evils to which they are thus osed. No returns can show the amount of suffering ch they have had to endure from causes of this l during the last year; but the present returns cate some of the final results of that suffering; y show that, out of 77,000 persons, 14,000 have n attacked with fever, one-fifth part of the whole; that, out of the 14,000 attacked, nearly 1300 e died. . . . It is notorious that this disease has n very prevalent during the last year among the istrious classes who have never received parochial f, and that it has found its way even into the llings of the rich, where it has proved extremely tal. Generated in Bethnal Green, in Whitechapel, St. George-the-Martyr, in Lambeth, in Holborn, it has spread to the better streets in the immediate hbourhood of these and similar places, and thence still wider and more airy streets at a greater ance, and ultimately to the most remote streets the great squares."

CHADWICK'S RECONNAISSANCE.

It was amid such surroundings that the sanitary conscience was awakened within the breast of Edwin Chadwick, who stands related to the development of public health somewhat as Lister is to the renaissance of surgery. To Chadwick's healthy, sane mind the world seemed a "lazar-house, wherein were laid numbers of all diseased." Environmental conditions made healthy life impossible. There was no escape, save by re-orientation and reform. Queen Victoria had just been crowned, Lister was 10 years of age, and Chadwick 37. Yet Britain was apparently spending little more than £2000 per annum towards everything that concerned public health.

Thence onwards, throughout a long life, Chadwick's thought and energy were constantly directed towards the recovery of the nation from the inevitable consequences of blindness and inaction. His secret "lay in the conception that the life of man is so entirely influenced and affected by its surroundings, that by a perfected sanitary code the death-rates may be made, practically, whatever we like to make them, until we arrive at that natural duration of human existence which is bounded by anatomical or physiological law."

Impelled by such considerations Chadwick began his insistent inquiries into the condition of London and the health of the labouring classes of other parts of England and Wales, which led to the appointment of the Sanitary Commission in 1844, and the formation in 1848 of the short-lived first Board of Health, of which Chadwick was one of four commissioners. Thereafter his labours—in chief part unofficial—were unceasing in relation to every aspect of sanitation in Britain and elsewhere. He was recognised widely outside Britain as one of the great master spirits, one of the first to awaken the careless public all over the world to the dangers they were creating for themselves. In France, towards the end of his life, he was described as "une des gloires de l'Angleterre."

Even if temperamentally he was not of the kind who drew all men unto him, Chadwick did not stand alone. He had close colleagues and keen fellow workers. Among these may be named especially Dr. Southwood Smith, Dr. Kay, and two men having special connexions with Edinburgh—namely, Dr. Neil Arnott and Prof. W. P. Allison, who occupied this chair at the 1858 meeting, and of laymen, Lord Shaftesbury, Charles Kingsley, and Florence Nightingale.

DAWN OF PREVENTIVE MEDICINE.

From 1840—when, thanks to William Farr, our system of registration began to have value—up to 1870, the death-rate of England remained uniformly high—over 22 per 1000 of the population. In 1869 the Royal Sanitary Commission was appointed "to inquire into and report upon the operation of the various laws then in force for promoting the public health and preventing epidemic diseases; and into and upon the administration of those laws, including the constitution of the administrative authorities, central and local, and the formation of areas proper to be controlled by local authorities; and into and upon the operation of the registration system in respect of certificates of causes of death; and the Commission was to suggest improvements in all or any of those matters, with the means for carrying such improvements into effect."

It is significant that the Royal Commission of 1869 followed the submission of a memorial to the Government by a joint committee appointed by the British Medical Association and the Social Science Association "to promote a better administration of the laws relating to registration, medico-legal inquiries, and the improvement of the public health."

REPORT OF ROYAL COMMISSION.

The Commissioners reported in 1871, and their recommendations, which have a remarkably fresh ring, included the following: "The present fragmen-

tary and confused sanitary legislation should be consolidated; the administration of sanitary law should be made uniform, universal, and imperative throughout the kingdom; all powers requisite for the health of towns and country should in every place be possessed by one responsible local authority, kept in action and assisted by a superior authority; there should be one local authority for all public health purposes in every place, so that no area should be without such an authority, or have more than one; the administration of the laws concerning the public health and the relief of the poor should be presided over by one minister . . . whose title should clearly signify that he has charge of both departments; the central authority . . . charged in one of its departments with the superintendence of all sanitary authorities, and equipped with a sufficient staff of officers . . . must nevertheless avoid taking to itself the actual work of local government; we would leave *direction* only in the central power. . . . The new department will have to keep all local authorities and their officers in the active exercise of their own legally imposed and responsible functions; to make itself acquainted with any default and to remedy it; it will have also to discharge to a much greater extent its present duties . . . namely, to direct inquiries, medical or otherwise, to give advice and new plans when required, to sanction some of the larger proceedings of the local authorities, to issue provisional orders subject to Parliamentary confirmation, to receive complaints and appeals, to issue medical regulations on emergencies, and to collect medical reports; every local authority should have at least one officer of health, being a legally qualified medical practitioner, or possessing such other qualification in medical science as shall be declared by the central authority to be satisfactory."

STATE ASSUMES RESPONSIBILITY.

The recommendations of the Commission were accepted in 1871 by Parliament. The Local Government Board—one for each division of Britain—was established. This constituted an initial step of first importance in the sphere of health. The State and Legislature now recognised as never before the meaning and value of the health of the people, assumed responsibility for its maintenance, and began to shape machinery on a national scale for its preservation and improvement.

The establishment of the Local Government Board, so far as it concerned health, implied (*a*) central guidance and direction, and (*b*) peripheral (local) interest and activity. It fell to the President of the Local Government Board, supported by eight ministerial colleagues and expert advisers, to consider matters affecting communal health and demands made by the quickened intelligence of the nation. Even if the Local Government Board seldom or never met, it devolved on the President to keep in close organic touch with 1809 local councils or boards which constituted the system. To those local bodies were assigned duties and responsibilities. Thus, the appointment by each sanitary area of a medical officer of health and a sanitary inspector was enjoined by statute. All this meant a very practical awakening throughout the land.

SANITAS SANITATUM, OMNIA SANITAS.

It was on April 3rd, 1872, at a great meeting in Manchester, in a speech which held "an enthusiastic audience with unflagging spirit for three hours and a quarter," that Disraeli recalled a suggestion he had made eight years before at Aylesbury—namely, that the words attributed to the wisest of mankind, "*Vanitas vanitatum, omnia vanitas*," must have been a misquotation, and that the words of the wise king were "*Sanitas sanitatum, omnia sanitas*," and that, if so, they constituted one of his best claims to be considered the wisest of mankind; and Disraeli concluded with the words, "After all, the first consideration of a Minister should be the health of the people."

1875–1927.

Thus far it has been my endeavour to show how, on the one hand, Lister was a forerunner in relation to preventive medicine, and how, on the other, his work reflected and re-enforced the trend of thought and effort of his time.

It may be convenient to recall some of the features of medical life round about the 1875 meeting, and compare them with the present day. A glance at the calendar of Edinburgh University for 1875 and at the record of the meeting is enlightening.

In 1875 the Medical Faculty of the University comprised 12 professors and 14 assistants, while the current (1927) list comprises 18 professors, 79 lecturers, and 38 assistants. At the 1875 meeting of the Association the separate sections numbered 6, while on the present occasion—after scrupulous pruning by the Arrangements Committee—they number 21. Reference to the titles of discussions and papers in 1875 emphasises the striking difference of outlook. The principles of preventive medicine, as understood to-day, were little in evidence. Of the numerous papers and subjects under discussion the only allusion to prevention occurs in connexion with scarlet fever, puerperal fever, and miscarriages. The relation of disease to micro-organismal life hardly emerges, apart from Lister's opening address. Bacteriology had not come into being. In 1875, for the first time, there was a section of public health, presided over by the Right Hon. Lyon Playfair, M.P. Yet it is to be observed that the subjects brought before the section included for the most part topics bearing on ventilation, drainage, vital statistics, the meteorological relationships of disease, &c., with little indication of the preventive outlook in the modern sense.

HAS THE PRACTICE OF MEDICINE ADVANCED SINCE HIPPOCRATES?

At the meeting in 1875 the address in medicine was delivered by one of the most thoughtful physicians of his age, Dr. James Warburton Begbie. He took for his subject "Ancient and Modern Practice of Medicine," and by way of preface quoted a remarkable question asked in 1852 by Sir William Hamilton, who was long the distinguished exponent of philosophy at Edinburgh: "Has the *practice* of medicine made a single step since Hippocrates?"

Sir William Hamilton's rather negative answer to the question was traversed by Dr. Warburton Begbie in an historical review which, even to-day, the student of medicine will find interesting, and by the citation of recent advances in treatment to which, at that date, Dr. Begbie thought reference was especially due. If the champion of medicine in 1875 was able to rebut effectually the reproach implied in the question, how much easier would be the task to-day? It is not my purpose to advance a studied defence. Progress in the practice of medicine during the past 50 years has been phenomenal. Countless illustrations will occur to everyone who is familiar with the developments of the past half century.

The great wave that was initiated by the genius of Pasteur and re-enforced by the originality of von Behring has refreshed the brain of medicine and directed its energies into channels of amazing width. Need I cite the complete revision of outlook and practice in the ever-widening group of infective processes? The adaptation of the principles of scientific cleanliness and the utilisation of the elemental properties of air and light, as notably in tuberculosis, have got deep down to the root of things, and give promise in the realm of medicine no less extensive than has been realised by the acceptance of Listerism in the realm of surgery. What more thrilling romance than the story of tropical diseases which, 50 years ago, constituted a *terra incognita* shrouded in mystery and tragedy? Recall the triumphs in relation to cholera, malaria, dysentery, enteric fever, sleeping sickness, and others. Incidentally, I may remind you that it was at the last meeting of the Association at Edinburgh in 1898 that Sir Patrick Manson revealed

to a thrilled audience the demonstration of the transmission of malaria by mosquitoes.

Recall the extending list of diseases which have been traced to intoxications and to parasites. The murky, malodorous fog which enveloped venereal disease has been largely dispelled. Syphilis and gonorrhœa are handled openly and scientifically throughout the land.

Recall the great vista opened up by clinical observations and experimental investigation on the ductless glands, which has resulted in a reconception of glandular values and the constitution of a new department of medicine—endocrinology. Recall our present attitude to the nervous system. While the teaching of the nervous system given to undergraduates 50 years ago covered the broad lines of structure, function, and pathological disturbance, the gap is indescribable between that and the precision of to-day, whereby lesions of very varying character can be differentiated and localised almost with the certainty of the physical laboratory. A department of neurology has been constituted, and the practice of psychiatry has become scientific. The old asylum as a house of detention with sombre portal (Abandon hope, all ye who enter here) has become transfigured by the spirit of the age into a home of prevention and a tabernacle of hope.

Diseases of the circulation were well understood 50 years ago. In no department had British medicine rendered more conspicuous service since the days of William Harvey. But think of the increase of knowledge and application of exact methods which the present generation has witnessed. The problem of the circulatory mechanism has been linked with that of the circulating fluid. The secret of blood changes as cause of disease and as expression of disease has been gradually unfolded by patient, original investigations. Cardiology and hæmatology now form departments of their own.

Similar references might be made to advances in relation to diseases of respiration, digestion, excretion. By the application to medicine of biological principles and chemical and physiological procedure, the physician is throwing light on the meaning of symptoms and changes previously obscure, and the department of biochemistry has emerged.

The natural history of diseases is being followed from the beginning, step by step, through successive stages which almost certainly develop unless the chain of events be broken by other influence. With what remarkable éclat this succession of events can be interrupted was dramatically illustrated in the discovery of insulin, which, whatever its ultimate place in the armamentarium of medicine, has effected changes in the life and outlook of a large group of human sufferers such as was hardly conceived possible a few years ago.

Other such therapeutic conquests occur to us all. I am little concerned for the moment with cataloguing their number. My purpose is rather to underline the statement that, within recent years, truly marvellous advances have occurred in the practice of medicine. These have been partly the natural development of lines of observation, long continued, at the bedside and in the post-mortem room. In considerable part they have resulted from the absorption into medicine of advances in the basal sciences of biology, physics, chemistry, anatomy, and physiology.

Those illustrations have been culled at random from the field of medicine, in view of Hamilton's question. Examples might have been found no less abundantly in relation to surgery. The point has already been developed in speaking of Lord Lister. Anæsthesia and asepsis paved the way for a sure and rapid development of surgical procedure. Technique became quickly refined and surgery bounded ahead. With the limitless opportunities tragically offered by the war and the urgency of peril which justified the knife as never before, there came the occasion of enterprise to many capable men who otherwise would not have had the chance. Whether the spirit of adventure has carried some of them too far, it is not my present purpose to consider.

Most of the so-called specialties have reared their heads since 1875. Many have become lusty growths, scientifically based, beneficent to the sufferer, and not unkindly to the labourer who is worthy of his hire. If the critic speak lightly of the specialist, it is often through ignorance of what specialisation in the proper sense means, and the scientific advances it implies. In his turn the specialist will be watchful, lest limitation of the scientific spirit and the presence of other motives give point to the captiousness of the cynic who, ignorant of the verities, is apt to interpret action according to his own standard.

EXTENSION OF FRONT LINE.

It is to more general indications of change that I now ask your attention. From the side of the State, following the creation of local government boards, came the gradual development of machinery, both central and peripheral. This was a difficult and delicate matter. The necessary adjustments at both ends required time and patience. Yet, as Sir John Simon says, "the fact that the medical profession had been brought into statutory relations with the local government of the kingdom, even though the relations were yet of rude kind, was obviously in principle a fact of good sanitary promise. . . . The medical profession being of such spirit as it happily is, those who knew it could feel sure that by many of its members who had become officers of health under conditions most disadvantageous and discouraging, great exertions would be made, great disinterestedness be shown, in trying to make their individual appointments bear fruit."

An obvious difficulty lay in the fact that local authorities were not all willing to do their part, and, even when they were willing, their knowledge and vision were limited. Time and education were required. It is impossible on the present occasion to follow closely the stages in the evolution of the boards' activities, which included not merely administration, but scientific inquiry and investigation. We must look rather at the outcome of these developments.

The passing of successive Public Health Acts, the National Health Insurance Act, and the Education Act, have stereotyped progressive advances and afforded fresh avenues of thought and effort.

Outward symbols of change are to be found in notification of certain infections, the segregation of fevers and other cases in special hospitals under expert direction, the creation of bodies of medical officers concerned with tuberculosis, maternity and child welfare, venereal diseases, inspection of school children, &c. Other evidence is yielded in the institution by the universities and licensing bodies of degrees and diplomas in public health, and, in connexion therewith, a special curriculum of training recently revised and extended by the General Medical Council. In Edinburgh University, for example, there was established in 1898 a chair in public health, and about the same time a special institute for the study of preventive medicine; also in 1898 a lectureship on diseases of tropical climates, in 1904 a lectureship on infective fevers, in 1913 a chair in bacteriology, in 1917 a chair in tuberculosis, and in 1919 a lectureship on venereal diseases, all of which have intimate relationships with the problems of prevention, immediate and ultimate. One of the latest outward expressions of the advancing tide is the munificent gift to the nation by the Rockefeller Foundation of £400,000, for the purpose of erecting the London School of Hygiene and Tropical Diseases.

On the eve of the last Edinburgh meeting (1898) it fell to me to publish in the *British Medical Journal* an address on the universal applicability of the open-air treatment of pulmonary tuberculosis. At that date there were not more than two or three sanatoriums in Great Britain. To-day there exist in England, Wales, and Scotland, under the control of the State, no fewer than 307 sanatoriums, excluding

general hospitals receiving cases of tuberculosis, and 151 voluntary or proprietary sanatoriums. At the date of last meeting there was one tuberculosis dispensary. To-day there are in England, Wales, and Scotland, under the direction of the State, 515 dispensaries, and similar institutions have been established in most countries of the world.

In 1875 the mortality from all forms of tuberculosis in Scotland was 361 per 100,000, while in 1925 it was 110. In 1875 the mortality from pulmonary tuberculosis in Scotland was 252 per 100,000, while in 1925 it was 76. In other words, during the 50 years there has occurred in each case a total drop in mortality of over two-thirds. This is something more than part expression of the reduction of the general death-rate of the country, in which the fall during the same period amounted to less than one-half. The relative fall is illustrated by the fact that, while in 1875 deaths from pulmonary tuberculosis constituted 10·6 per cent. of deaths from all causes, in 1925 they constituted only 5·7 per cent.

If, in England, Wales, and Scotland the death-rate of 1875 had continued, there might have been expected in 1925, with the increased population, 107,999 deaths, whereas actually only 36,116 deaths occurred. In other words, there was a saving of 71,883 lives during the year—that is, over 66·5 per cent.

Having regard to the natural history of the disease and the possibilities of well-concerted warfare, I ventured in 1910 to prophesy, when speaking of the adoption in New York State of a coördinated tuberculosis scheme like that adopted by Britain three years later, that, granted the serious prosecution of the scheme, and special attention to the child as potential tuberculosis seedling, the practical disappearance of tuberculosis might be expected by 1950–55. To-day, in spite of the interruption and difficulties introduced by the war, I am prepared, on the necessary assumption that the methods are vigorously pressed, to believe that my successor at the next Edinburgh meeting—say, 30 years hence—will speak of tuberculosis in this country as largely a memory of the past.

By the passage of the Act which established the Ministry of Health (England) and the Board of Health (Scotland) the State has even more definitely—if language implies anything—shouldered her responsibility in relation to preventive medicine. A beginning has been made towards the inclusion and coördination under a common head of administrative departments concerned with health matters. It is not my purpose to discuss the completeness of the provision or the sufficiency of details. There has been a good deal of stumbling and muddling which seems characteristic of progress in England, but the machine, even if cumbrous and creaking, is functioning throughout the land. I am content for the moment to underline what I believe to be unchallengeable, that Britain possesses the amplest machinery to be found anywhere for the prevention of disease—machinery which, by reason of its completeness from centre to periphery, and its uniformity of operation, is justly the envy of the world.

WIDENING OBJECTIVE.

If the present position is relatively good, it has been the outcome of continuous striving after ideals inspired in the earlier days by individual thinkers and workers. But we are far from the last lap in the race.

One thing is clear. Things will not rest where they are. What is to be the line of further advance? The man-power of medicine is vast—greater than ever. The field forces are distributed in instructed groups. They are well officered, and there is abundance of consultative and advisory bodies to whom debatable points may be referred. What is to be the objective of this mighty army? What is the strategic front of medicine to-day?

Medicine has been described as the science and art of healing. Throughout the ages she has been the champion of man against disease and death. Her sacred mission has been expressed variously in successive centuries. Her triumphs have been great.

It has been my endeavour to show that some 80 years ago there began to be evident a great turning movement. The vision of medicine became enlarged and the objective correspondingly altered. Without passing from the care of the individual sick man, for whom medicine will always have earnest solicitude, she has gradually begun to think in terms of groups and communities. In Britain this change of outlook has been hastened by the great wave of urbanisation which has passed over the country—a transfer within less than a century from 75 to 25 per cent. rural population, and from 25 to 75 per cent. urban population. This has inevitably directed thought towards common causal factors of disease—environmental influences which, significant as they are in the individual case, can be studied and interpreted best among the aggregations of men. This has insensibly determined inquiry towards the prevention of disease. This, in turn, has impelled consideration of the early manifestations of disease. Medicine has ceased to be merely the healing art.

COMMUNAL EFFORT: GROUP PRACTICE.

The fact of illness means much to the sick man, and has a first place in his doctor's mind. Yet from another point of view the treatment of the individual becomes an incident in a larger enterprise. Individual illness means more than it used to do. Its occurrence raises far-reaching questions of cause and of remedy the solution of which will lead to the prevention of similar occurrence in persons similarly disposed all over the country. Those considerations are of particular significance in relation to widely prevalent diseases such as cancer, tuberculosis, rheumatism, occupational disorders, &c. Such affections take time to develop. Yet for the most part they are well established before they come under review by the doctor. If medicine is to be effective in respect of these conditions, it can only be by an alteration in the attitude both of doctor and of patient.

The doctor is sometimes called the family adviser. To what extent is the relationship which that term connotes realised? To what extent is it realised in family practice? To what extent is it realised in group practice? The introduction of panel practice—whatever objection may be taken to the particular model established by the statute—has opened great possibilities. The panel doctor, retained as medical adviser, continues to treat illness and accident as before, but he has a potential in relation to persons on his panel which, if thoughtfully used, may make for prevention on a large scale. In view of the form of contract, it is indeed to the selfish interest of the doctor to consider and anticipate environmental conditions likely to prejudice his clientèle. It will be to the mutual advantage of patient and doctor that he should become a preventive agent; and the health of the community will be correspondingly advanced.

The principle is readily applicable in all group practice and might advantageously be extended to what is generally known as private practice. What is wanted is a scheme of intelligent protection against illness. Why should not private contracts be arranged on the oriental line of payment for keeping the client well? At least there should be between doctors and patients common agreement as to the advisability of periodic physical examination, on the lines of inspection for recruitment or life insurance, so that morbid tendencies or threatenings of disease may be nipped in the bud.

A number of years ago, when consulted by large employers of labour regarding the frequency of tuberculosis among their workers, it seemed to me right to advise them that "in the light of present day knowledge, the occurrence of tuberculous disease in a certain number of workers may be interpreted as in part at least, one of the penalties of industrial life. On economic no less than on scientific grounds the

is much to be said for the institution of a method which would insure that every newcomer to a given industry is, prior to admission, specially examined for the presence of tuberculosis—more especially pulmonary tuberculosis—and, if accepted, is thereafter examined from the same point of view, every four to six months, especially during the first few years." Such a scheme would assure advantage to the individual concerned, to his fellow-workmen, and to the employer alike. Some of the great insurance companies across the Atlantic have thought it worth while to arrange for the periodic examination of their policyholders. I have been assured by representatives of one company that from their point of view this is a good business proposition: Prevent serious illness and postpone death. Thereby maintain the annual income of the company through premiums and defer the ultimate payment to the policyholder, who is not likely to complain of the advantage which thus accrues to the company.

Why should such a system of medical examination not become general, and the family adviser be enabled to play his proper part in the prevention of disease? An approach to the method is already in vogue with the dentist, who enjoins his clients to submit to a periodic dental review, to which the client, with experience of pains and penalties, commonly accedes. If the owner of a valuable car thinks it sound economy to send it from time to time to be overhauled at the garage, why should expert overhauling of the human machinery seem less desirable?

Out-Flanking Movement.

The further disposition of the forces calls for a wider orientation of the field. The ultimate goal is something beyond mere prevention of disease, as commonly understood. The negative attitude is too restrictive. It is scientifically insufficient and unsatisfying. The final triumph of medicine will consist not in the exclusion of disease, but in the restoration to man of perfect form and natural function: the attainment of smooth activity of body, mind, and soul. Biology—anatomy and physiology—must be relied on to carry us further than pathology and therapeutics, as commonly understood. Medicine, thus enlarged, becomes a department of biology and constitutes, pro tanto, the science of human life.

Our pathological museums will then serve as agents of preventive medicine. I foresee a time when the bottled preparations—the "beautiful" specimens of to-day—will figure in large part as do ancient manuscripts in our libraries, or as the crude relics of the dark ages in an antiquarian museum. They will stereotype to all time some of the vicious by-products of partial civilisation—of imperfect adaptation to environment—and afford cogent stimulus towards revision. Further recurrence of the conditions they illustrate will come to be regarded as little short of criminal.

Unity of Purpose: Collaborative Effort.

If the larger objective is to be reached there must be unification of purpose and solidarity throughout the forces engaged on the long strategic front. This involves considerations as to the training of students of medicine, and of candidates qualifying for special diplomas and for the nursing profession. It involves the direction and scope of medical research. It involves questions regarding the utilisation and coördination of different grades of hospitals and other medical institutions. It involves the relationships of various groups of medical practitioners to one another, and the relationship of the general body of medicine to various departments of the public health service. It involves the mutual relations of medicine and the general public, and the methods for securing trust and compliance. It orients afresh the connexion of medicine with the State. It makes insistent call for international goodwill and coöperation.

[Sir Robert Philip here detailed the menacing records of recruiting statistics, saying that the teaching of biology is not sufficiently insisted upon, and that research is not sufficiently conducted upon right principles. He continued:—]

Reorientation of Medical Needs.

The provision of well-equipped hospitals for the sick is one of the satisfying aspects of our civilisation. At first their foundation was for the most part voluntary. The inspiration was humanitarian and Christian. And long may the inspiration continue! The good Samaritan was a voluntary worker, unofficial, neither levite nor pharisee. The immediate object of the hospital, like that of early medicine, was relief of the individual sufferer. This outlook largely continues.

Now that the nation has shouldered the wide responsibility of both treatment and prevention, a reorientation of medical provision is necessary. The supply of hospital beds for persons who are seriously sick and in need of skilled care must be adequate in extent and fair in distribution throughout the country. But if hospitals are to have effective value in the larger field of prevention, there must be developed fuller possibilities for scientific investigation, and a completer follow-up service in relation to individual patients and their environment. The significance of this last point was pressed by me conspicuously in relation to tuberculosis, and formed a main plank in the programme of the tuberculosis dispensary as originally conceived 40 years ago. As to its value when properly conducted, there cannot be two opinions. The difficulty lies in the coördination of effective agencies.

The natural agent in the follow up is the family doctor, whether private or panel practitioner. In proportion as he is able to develop the preventive outlook, things will go well. When such natural provision is absent, or insufficient, there falls to someone else the delicate task of projecting the benefit obtained in hospital throughout the life of the patient at home and at work. This has become the field of the almoner or health visitor. Satisfactory fulfilment of the mission calls for wisdom and prudence in high degree. Within the field there are rich opportunities for scientific and social investigation.

In addition to the extension of service rendered by the individual hospital, there is great need to link up and coördinate the various types of hospitals. The different elements in the hospital network must be more or less united—loyal to the common cause and to each other. The élite within the group must lay less stress on amour propre and more on esprit de corps: Noblesse oblige. The better equipped hospitals and medical schools might do much to help smaller institutions and the great body of practitioners by sending out members of the staffs to coöperate with, and keep up to date, men who are stationed in the periphery.

The attitude of the Central Health Authority to the hospital question should be: Give us assurance that an adequate number of beds is available for the needs of the country, and that these are justly distributed in respect of the various areas and the various groups of diseases, and that their links with each other and with ancillary services are sufficient; it matters not to us whether the hospitals are maintained by voluntary effort or by the rates, or by such other machinery as may be found serviceable to the end. The fundamental requirement is that the Central Health Authority should have guarantee from the local authority that the provision of beds is adequate to the needs of its area, and that a jealous outlook is maintained in the direction of prevention.

Unification of Command.

As a preliminary to this, it is essential that responsibilities and powers relating to everything that concerns national health be vested centrally in one supreme health authority in the several portions of the kingdom, and peripherally in the various local health authorities acting under the central authority towards the common end. This means the inclusion in the department of health of a number of activities

which are presently outwith the department. The exclusion hampers procedure and development. Thus, in respect of hospital accommodation, there is everything to be said for the transference to the health department of the responsibility for medical treatment and care which is presently exercised by Poor-law authorities. All hospitals for the treatment of the sick should be included as component parts of a more or less uniform system applicable throughout the country. The legend over the door of the Royal Infirmary of Edinburgh—Patet omnibus—must inspire the nation's policy in matters of health. The advantages that would accrue to such transfer and combination are obvious in respect of the output of the collective group of hospitals, whether we consider that in terms of the treatment of the sick, the training of students and nurses, or the advance of medicine by observation and research. Let us hope that within a very short time the rearrangement will be secured by Act of Parliament.

ECONOMIC ALIGNMENT.

In connexion with the provision of hospitals, it is to be borne in mind that, in proportion as the preventive attitude is assumed by the medical profession, unofficial as well as official, the need for certain classes of hospital will grow less. This will bring economic advantage. Thus, when the truth of the dictum comes to be adequately accepted that "the tuberculosis of a people begins in the nursery and school-room, and that it is to the nursery and school-room that observation and effort must be directed if measures for the eradication of tuberculosis are to be fundamentally sound and practically effective," the need for the provision of hospitals for advanced stages of visceral disease and for crippled frames will progressively diminish. The time will come when hospitals for advanced disease and settlements for tuberculous wrecks will be regarded as anachronisms. In proportion as it is recognised that tuberculosis may be prevented or, at least, that the worser consequence of infection may be anticipated and averted, the scheme of remedial institutions which are immediately necessary because of the ignorance and neglect of the past will undergo progressive modification and curtailment.

With widening vision regarding hospital and ancillary services the relation between different sections of the profession will become simpler. Attachment to hospital and other medical institutions will become more general in the medical ranks. The medical corps throughout the land—official and unofficial—will be welded by the common aim to conserve the health of the nation. The result of the effort will depend ultimately on the general practitioner. It is to the family doctor, who is the effective embodiment of the spirit of the profession, that the nation must look for the development of the turning movement towards health. The family doctor, to whom the home in all its health interests should be no less open than the sick room, can contribute most to complete the success of the new strategy. The resources of medicine must be pooled. If there be community of purpose and knowledge, the tactics of the new advance are not beyond the wit and power of the profession. It is up to each arm to do its part.

Eighty-seven years ago Charles Wilson, a Scottish country practitioner, summed up the results of his observations on the health of the labouring population of the border town of Kelso as follows:—

> "When man shall be brought to acknowledge (as truth must finally constrain him to acknowledge) that it is by his own hand, through his neglect of a few obvious rules, that the seeds of disease are most lavishly sown within his frame and diffused over communities; when he shall have required of medical science to occupy itself rather with the prevention of maladies than with their cure; when Governments shall be induced to consider the preservation of a nation's health an object as important as the promotion of its commerce or the maintenance of its conquests, we may hope then to see the approach of those times when, after a life spent almost without sickness, we shall close the term of an unharassed existence by a peaceful euthanasia."

Most remarkable words, you will agree with me, for the year of grace 1840.

INTELLIGENCE DEPARTMENT.

The ordinary citizen needs to be educated. He is even now clamouring for knowledge. The lesson of health should begin in the school. Having regard to the marvellous heritage of health to which most individuals fall heirs at birth, it seems incredible that no systematic attempt has been made to instruct the entrant into life regarding its preservation. We must press for the more general inclusion within ordinary school teaching of training in the principles of health—*not* instruction regarding disease or a system of hygiene. What we want to ensure is, that the growing individual has a working knowledge of the make-up of his own body and its functions, and can appreciate beauty of form and know when smooth activity is disturbed. He must get to understand the close dependence of health on environment. The recent appointment at one of our public schools of a doctor as headmaster is an interesting experiment in the forward direction which seems to me commendable. The result will be followed with interest. It remains to be seen how the doctor compares with the clergyman and with the scholar in charge of developing boys. With youth sensibly trained about the machine which is peculiarly his own, it may be anticipated that within a generation the attitude of the nation to health questions will be completely changed.

Meantime, existing ignorance and post-war restlessness must be faced. There is need of popular education in the wider sense, and the dissemination of sound knowledge regarding health and the factors which make for disease. It must be insistently urged that, *the causes of disease being withdrawn, health restored.*

To avoid the difficulties and pitfalls attendant on sporadic propaganda by individual members of the profession there should be an ordered attempt to use legitimate means to achieve the purpose. Medicine must roll out "the song seraphically free of taint, personality." Why should not the British Medical Association, through its network of branches, serve as chief voice? Within recent times the Council of the Association has been consulted by, and has been accorded entrée to the Ministry of Health regarding debatable subjects. Why should not each branch similarly form an accredited medium of communication with the corresponding local authority by means of reports on matters affecting the health of the area, and with the larger public by the press through authoritative contributions on questions of living interest? The press is a great educator: it is *university of the man in the street.* Medicine must court its alliance and contribute her best to aid its efforts.

[Sir Robert Philip concluded his address with an eloquent description of the international aims of medical workers.]

UNIVERSITY COLLEGE HOSPITAL.—Recently Princess Mary, Viscountess Lascelles, visited the Maternity Hospital at University College Hospital and made a complete tour of the wards. The pressure on the maternity wards is so great that mothers cannot, as a rule, be kept more than ten days. The hospital was built out of the Rockefeller gift, and a sum of £180,000 was needed for the endowment of beds, of which £170,000 has been subscribed.

ALDERSHOT HOSPITAL EXTENSION.—The Mayor of Aldershot has inaugurated a campaign to raise money for a new operating theatre, X ray room, extension of the men's ward, and additional staff quarters at the Aldershot Hospital. More accommodation is badly needed in the hospital, and it is felt that in a town the size of Aldershot there must be adequate equipment to deal with both accident and disease. The estimated cost of the provision, extension and equipment is £6100, and the committee have raised £2800. Towards the additional £3300 needed the Mayor has so far received promises totalling £2000.

An Address
ON
CLINICAL TRAINING IN
OBSTETRICS AND GYNÆCOLOGY.

Read in Opening a Discussion at the Obstetrical and Gynæcological Society, Glasgow.

BY JOHN S. FAIRBAIRN, B.M., B.CH. OXF., F.R.C.P. LOND., F.R.C.S. ENG.,
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THE chief object of this paper is to urge the importance of clinical training in these subjects being so arranged that the students whilst learning their science and practice should also be stimulated to acquire the preventive bent of mind. Preventive medicine will not be considered as a special branch of medicine, but as an attitude of mind that may be developed and fostered in all the clinical studies. Obstetrics and gynæcology, especially if combined with or followed immediately by training in pædiatrics, offer a particularly favourable opportunity in this regard, owing both to certain distinctive characteristics of the subjects and to the late stage in the curriculum at which they are taken. During his service as medical clinical clerk and surgical dresser, the student has been taught from the pathological side—from observation of diseased and injured—because clinical material in hospital is of this type and because it is easier to teach diagnosis to the beginner on cases of well-established disease with obvious physical signs. The alternative system of beginning from the physiological side would appear to be the more rational sequence of the earlier non-clinical studies, but the testing of samples of the ordinary population in order to discover those showing weakness or early disorder of the bodily functions would be difficult to organise under present conditions in hospitals. Certain branches of medicine are suited to serve as training grounds from the physiological rather than the pathological aspect, and among these branches midwifery stands out prominently, for the very reason that it is so largely concerned with the normal processes of reproduction and how to keep them normal. If, however, the most is to be made of the difference in method, and if the student is to be trained in a fresh atmosphere, special thought must be given to the planning of the course of study.

THE ORIGINAL SYSTEM FOLLOWED AT ST. THOMAS'S HOSPITAL.

To illustrate the application of these principles, and to give a concrete example of an attempt to put them into practice, I will sketch the evolution of the system as now organised and working in my own school of St. Thomas's Hospital.

The system I wish to describe dates from 1910, and came into being as the result of the recommendations of the General Medical Council based on the report of the John Williams Committee of 1906—a report that marks an epoch in the teaching of midwifery in this country, because it marks the beginning of the era when clinical training in midwifery was no longer to be picked up casually on an extern district, with no other supervision than that of an inexperienced house officer. The driving force in London came from the universities of Oxford and Cambridge, which adopted the General Medical Council's recommendations en bloc and left the medical schools to find a way of making provision to meet them. The London University and Conjoint Board adopted only such of them as were not inconvenient to the medical schools of London. St. Thomas's, having a relatively high proportion of students from the older universities, determined to open a maternity ward for their clinical instruction. A ward of 21 lying-in beds with its necessary adjuncts was opened, making, with the gynæcological ward of 29 beds, 50 beds in all. With the addition of the extern district, providing at that time about 1500 deliveries per annum, and the out-patient department for diseases of women, the hospital was able to provide a three months' whole-time service—i.e., without other clinical work—for all its students. The first six weeks were spent in residence and in midwifery work; for four of these weeks the student learnt his clinical midwifery in the hospital, and for the other two weeks he applied the experience so gained in the houses of the district patients. The remaining period of seven weeks was devoted to in- and out-patient clerking in the gynæcological department. When not required in the maternity ward spare time was occupied by attendance at the various gynæcological clinics.[1]

This was the first maternity ward in a general hospital with a medical school of a capacity sufficient for the training of all its students. The annual number of deliveries was about 600. Though now general in the London schools it was the first combined training in midwifery and gynæcology through which all students passed. The department was increased as time went on by the addition of prematernity and infant clinics (the latter as part of the follow-up department of the midwifery patients), the details of which I need not go into. The department had reached a sufficient degree of development to be noticed and given a detailed description by the medical officer to the Local Government Board in his report for 1913–14 (page xxxi.).

THE SYSTEM NOW IN USE.

The 15 years' experience of having students working full time for three months in an "obstetric atmosphere" was a great education to those responsible for their training. It made all of us realise the enormous value of "atmosphere." As time went on and the department expanded our ideas expanded also. The "preventive atmosphere" became more dominant, and on this account our department in the post-war years came into closer contact with the children's department. Although encouraged to attend, the students paid little heed to the clinics for well babies, for they had no examination value. The pædiatrician, however, held a clinic once a week in the maternity ward, which was attended both by the obstetric clerks and by the clerks from the children's department. The students who had passed through our department were encouraged to proceed immediately to act as clinical clerks in the children's department. The next step was to amalgamate the two departments and thus increase the length of time spent in the "preventive atmosphere," and also the strength of "prevention" in it. This amalgamation had been the obvious step for some years, and, indeed, was adumbrated by me in papers read at the discussions on Medical Education at the Edinburgh Pathological Club in 1918[2] and at the Obstetrical and Gynæcological Section of the Royal Society of Medicine of London,[3] but it was not until 1925 that our scheme was placed before our medical school council and accepted. Under the scheme each student gives six months' whole-time service to the combined study of obstetrics, gynæcology, and pædiatrics. It has now been working long enough for some impression of its advantages and possibilities to be obtained. Roughly the six months' service is divided equally between obstetrics, gynæcology, and pædiatrics. Residence in the hostel and within call is now extended to two months, during which the student's time is portioned out between the antenatal clinics (four sessions a week), the clinics for well babies (two sessions a week), the practice of the maternity ward and attendance on intern cases for the first month, and extern cases for the second month. Four to six obstetric clerks are on duty at a time and take their maternity cases in pairs,

[1] Brit. Med. Jour., 1912, ii., 1106.
[2] Edin. Med. Jour., November, 1918, xxi., 286.
[3] Proc. Roy. Soc. of Med., Sect. Obst. and Gyn., 1919, xii., 40.

but a general call to all students in residence is issued for abnormal cases in the maternity ward. The second two months is occupied by clerking and dressing in the gynæcological department and the final two months in the clinics for well and sick children, clerking in the children's medical ward, with attendance at gynæcological out-patients on two sessions a week.

The advantages obtained by this combination have been very striking to those who have been teaching from the earlier stages in the evolution of the scheme, and it may make them clearer to others if the contrast is pictured between the primitive stage when maternity cases, gynæcological practice, and attendance in the children's department were taken as isolated events in the curriculum, often sandwiched in between other clinical work, and the system as outlined above. If the total length of time given by the student to obstetrics, gynæcology, and pædiatrics is not increased by one day, and these subjects are but linked up into a continuous period of service so as to serve as an object lesson in preventive medicine, the gain is enormous. I predict that a comprehensive scheme for the clinical teaching of these subjects in chronological order, starting with the care of the pregnant and parturient woman and the maintenance of the health of the mother through reproductive life, and including the child through its early developmental stages, will, wherever adopted, be recognised as a great advance.

THE "PREVENTIVE ATMOSPHERE."

The next point I would make is that the student's outlook over the world of medicine may further be widened by coöperation between the various teachers in gynæcology and pædiatrics in the direction of developing a new and special "atmosphere" in which the teaching is conducted. Such "atmosphere" must naturally depend on the individual characteristics of the teachers and the school; its development may be fostered by careful arrangement of the curriculum. The subject of study is represented as the hygiene and care of the reproductive cycle, with the double objective of lessening the price paid by the mothers in bearing and rearing the next generation and of lessening death and disability among the new stock. So far as can be the teaching is from the physiological side, with the degree of the normal attained through pregnancy, labour, and lying-in and the early developmental stages of the infant as the criterion of successful practice. The care of the mother is made the centre-point, for she is the executive in the nurture of her family.

The differentia of this form of training becomes clear to the student when he discovers that the patients in the clinics—mothers and infants—are healthy and not sick folk, and that his object now is to maintain this state of health by seeking out the causes of disorder or early intelligence of its beginning. In time he acquires the habit of mind that leads him to review all abnormalities in order to see why failure of prevention has occurred. The student is also encouraged to think in terms of the community and of the importance of the subjects of study to the health of the nation. Many occasions arise of pointing out to him the evil results to the young family of ill-health in the mother, and of ignorance, carelessness, and lack of foresight in the parents. In the gynæcological ward he sees instances of the failure to prevent injuries and infections during reproduction with their ill-effects on mother and family. Thus he learns to look beyond the individual patient and visualise the results of bad midwifery, of bad hygiene, and neglect on both generations. Where there is a social service department, instruction on this side before beginning attendance on district cases widens the student's field of vision and adds greatly to his interest in and understanding of his patients. Many an obstetric clerk has told me that the talk from the lady almoner was the most instructive hour in his medical studies. The opportunity should not be allowed to slip of making this time of attendance on patients in their own homes a means of filling up the serious ga in a medical education that is otherwise based wholl on patients seen within hospital walls and divorce from the conditions of their everyday life.

THE TEACHING OF MIDWIFERY.

So far my argument has been restricted to th development of the preventive bent of mind in th student, and the obvious criticism may be mad that the paper so far has not yet touched on th actual teaching of midwifery. The equally obviou reply would be that midwifery is a branch of preven tive medicine, and no teaching in it can be adequat unless conducted in the atmosphere of preventio and so as to produce the essential mental attitude Is it not the lack of this attitude of mind that is th greatest failing of present-day midwifery? Th need for it is being preached everywhere, and thi paper is but a plea for its more intensive introductio into the training of the new entrants into the pro fession. We must get back to the primary aim o maintaining the natural processes throughout repro duction, and look on all interference with norma function or substitution for it as failure to secur our chief objective. Sound foundations for practic can only be laid in an atmosphere of preventio and there is no fear of the atmosphere being made s thick that the primary duty of doing the best fo the patient will not be clearly visible.

In teaching the practice of obstetrics and gynæco logy the chief difficulty that faces the teacher is tha of giving the student direct clinical experience o various complications of labour and obstetric manipu lative procedures and of bimanual examination o sufficiently large numbers of patients with norma and abnormal pelvic organs.

The antenatal clinic with its fequent attendance of women in all stages of pregnancy affords almos unlimited opportunity for acquiring skill in abdomin diagnosis and external manipulation and of learnin the supervision of pregnancy. I do not lay an stress on the desirability of the senior members of th staff teaching the management of normal labou My personal opinion is that no one can do it bett than a highly trained labour-room sister. The dut of the medical staff is to maintain a technique of hig standard so that the student, after spending a mont under its influence and witnessing and conductin labours as carried out according to the ordina practice of the labour-room, will acquire a hab that he will carry with him through his future practic For the abnormal cases, on the other hand, the co stant presence of an experienced member of the sta is necessary, and that is undoubtedly a weak sp in our teaching. It will be generally accepted th the principle of a chef de clinique living in t hospital—such, for instance, as the Master of t Rotunda—is the most satisfactory system for lar institutions, but few obstetrical and gynæcologic departments of a general hospital can provide t material to justify such a policy. An experienc resident chief for large maternity hospitals (especial if amalgamated with the hospitals for women) is t ideal for the training of students. This arrangeme was advocated by the Committee of the Obstetric and Gynæcological Section of the Royal Society Medicine in London that went into the question 1919.[4] That committee, regarding the matter fro the point of view of teaching, was strongly of opini that the move of the London medical schools to fo self-contained departments was a retrograde st and that the Rotunda plan of a large combin maternity and gynæcological hospital with experienced resident master and assistants was t best. The one thing in favour of the small unit with the large general hospital is that the resourc both in personnel and material, of the general hospi become available. I have served in a special matern hospital and on a general hospital with a matern ward, and have found the enormous advantages of t

[4] Proc. Roy. Soc. of Med., Sect. Obst. and Gyn., 1919, xii., 1.

laboratories with their skilled officers, the experienced personnel in all departments, and the additional resources for diagnosis and treatment that the general hospital affords and the special cannot provide.

The teaching of obstetrical manipulations must be largely carried out on the model, but should be kept in close relation with clinical midwifery—e.g., immediately after practice in the ward and on the district. The object of the teacher is to use the procedures the student has actually witnessed as the foundation and to build on them both the details of those manipulations he has seen and the whole procedure in those he has not seen.

The proper supervision of the student while attending labours and visiting patients on the district presents a somewhat difficult problem because someone more experienced than a temporary house officer is required. This duty should be assigned to an officer at least of the standing of a registrar or tutor and holding the post for two or three years.

The removal of acute puerperal infections and venereal infections from the immediate purview of the student makes it necessary to arrange special clinics elsewhere. These occasional visits help to fill in blanks in the student's experience, but cases demonstrated never make the same impression as those continuously under the observation of the clinical clerk. Constant thought is required to lessen the disadvantages of the specialisation and segregration both of methods of investigation and of cases by which they tend to be removed from the immediate observation of the student.

THE TEACHING OF GYNÆCOLOGY.

Gynæcology also has problems of its own. The material in hospital wards is far too largely made up of women admitted for operative treatment, and is in no way representative of the gynæcology of family practice. Diagnosis, both by abdominal and bimanual examination, can, however, be most readily acquired in the wards; the all-important point is that the out-patient department should be used to its fullest extent for teaching minor gynæcology and that a selection of minor cases for indoor treatment should be made. Gynæcology has to be taught almost wholly from the pathological side. Even we teachers suffer from lack of opportunity of examining the pelvic organs in women without signs or symptoms of disorder, and thus form an incorrect perspective. Attention must be concentrated on all injuries and diseases arising out of the exercise of the reproductive function and their causation and prophylaxis discussed fully, as well as the measures to be taken for their care or relief.

Neither the physiology of the reproductive processes nor the pathology of the reproductive tract receives such attention in the students' previous studies, and the opportunity should be taken to give this instruction during the time of service in the department. The more closely this teaching can be kept to the patients under observation the better. All pathological material should be demonstrated, naked eye and microscopic, as part of the clinical case and discussed from its clinical as well as its scientific aspects. In these demonstrations opportunity readily offers to show other and related conditions, so as to fill in what the student may not have seen clinically. Also normal material from abortions, placenta, &c., and the histology of the normal pelvic structures may be conveniently studied in comparison with morbid conditions.

THE ASSOCIATION OF OBSTETRICS WITH PÆDIATRICS.

A word or two may be said regarding the association of obstetrics with pædiatrics. The latter term has been used as connoting the study of the developing child from the physiological side, and pædiatrician or pædiatrist is adopted rather than "physician for the diseases of children" because it suggests the hygiene and management of the normal infant and prophylaxis as his primary study rather than the cure of the disorders and diseases of childhood. By bringing pædiatrics into close association with obstetrics, the area known to the public as "maternity and child welfare" is covered and provides a very sound apprenticeship for the student. Both are begun from the standpoint of physiology and have similar characteristics. Close coöperation with the pædiatrician is required, for the two subjects run together at times. The management of the mother, for instance, in all cases of difficulty with breast-feeding is reckoned as a problem in pædiatrics and not obstetrics. The much greater readiness with which the student takes to the study of the infant when it comes to him directly as part of the follow-up of his maternity work and as part of a scheme of preventive medicine has struck both obstetric and pædiatric teachers.

CONCLUSION.

My final point is to urge that if these subjects are combined into a consecutive study, and the benefit to the education of the student is set out in some such a way as I have attempted, a better case can be made for the granting of the necessary time or facilities. Midwifery is always described as playing Cinderella in the curriculum to her older and bigger sisters, medicine and surgery. For this neglect those professing midwifery are not altogether without blame, for they have not been very successful in playing the part of fairy godmother so as to display her charms and trick her out to be attractive. My experience in agitating for better facilities for clinical training and a larger share of the student's time has been that the more these wider aspects are stressed, and the more our teaching is described as that of the care of the reproductive cycle, of the mothers and of the rising generation, the stronger the appeal to our colleagues, lay or medical.

JAUNDICE IN RELATION TO SURGERY.

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JAUNDICE is the term applied to the pigmentation of the tissues—clinically of the skin and conjunctivæ—caused by bile-pigment in the blood. The urine and fæces will show the presence or absence of bile according to the cause of the jaundice. The pigment is normally present in the blood in small quantities, a considerable excess (probably ten times the normal) being required before clinical jaundice appears; but before this limit is reached there is a condition of latent jaundice, cholæmia, which probably has considerable clinical significance.

The Formation of Bile-pigment.

The theory of the formation of bile-pigment is as follows:

Hæmoglobin is broken up into its two components, protein and hæmatin; the hæmatin undergoes a further change into an iron-containing moiety and an iron-free moiety hæmatoidin. The latter is nearly or quite identical with the bile-pigment bilirubin, and it is probably the source of this substance under normal conditions. It used to be held that the liver was essential for these changes, but Whipple and Hooper, and later Mann and others, have shown that bilirubin can be produced apart from the liver, and it is now generally believed that bile-pigment is formed by the reticulo-endothelial tissue of the body—a large part of which is situated in the spleen, bone-marrow, and liver—in the latter under the name of Kupffer's cells. That bilirubin can be formed by other organs than the liver receives additional evidence in hæmolytic jaundice, where removal of the spleen causes an immediate disappearance of the jaundice. The fate of bilirubin, once it is formed, is said to be this: It is passed through the polygonal cells of the liver and appears in the bile, probably changed in some way, and so into the intestine. Somewhere in the intestine it is reduced to urobilin by bacterial action, and this substance is reabsorbed in part and returned to the liver, where it is resynthesised into hæmoglobin by uniting with the iron-containing moiety which has been stored for this purpose.

Another view is that urobilin is formed in the liver; Whipple says there is no evidence of absorption of urobilin from the intestine. The urobilin unites in the liver with the iron-containing moiety to form hæmoglobin. Some of the bilirubin, of course, passes on into the bile. In support of this view the phenomena observed in hepatic cirrhosis are cited. Here there is excess of urobilin and urobilinogen in the urine, and it is held that the deficient liver function prevents the formation of hæmoglobin in the manner stated above. Urobilin passes on, then, into the hepatic veins and is excreted by the kidneys; as it does not take its full part in the forming of hæmoglobin, anæmia results.

Causes of Jaundice.

McNee states jaundice may arise for the following reasons:—

1. Bile-pigment, formed in the cells of the reticulo-endothelial system, passes through the polygonal cells normally to reach the bile capillaries, but is obstructed there and finally reabsorbed into the blood.
2. Owing to damage to the polygonal cells of the liver, the bile-pigment carried to them by the endothelial cells is unable to enter them. The bile-pigment would, therefore, pass directly along the hepatic venous radicles into the general circulation. On the other hand, part of the bilirubin might pass through, and part be unable to do so.
3. In excessive blood destruction too much bilirubin is formed in the reticulo-endothelial tissue for the polygonal cells to deal with. In such circumstances some pigment might pass normally into the bile capillaries and colour the fæces, while the excess might pass straight through the hepatic veins into the general circulation and bring about jaundice.
4. In addition to damage and disordered function of the polygonal cells, there is obstruction in the bile-ducts—for example, cholangitis. In such circumstances some pigment might pass directly into the hepatic veins and so into the general circulation, and some through the polygonal cells, to be afterwards reabsorbed on account of the obstruction.

Clinical Classification of Jaundice.

McNee classifies clinical jaundice into three groups: (1) Obstructive hepatic jaundice; (2) toxic and infective hepatic jaundice; (3) hæmolytic jaundice.

Van den Bergh's test has been of great help in elucidating problems connected with jaundice. When jaundice is due purely to complete obstruction of the bile-ducts the direct reaction appears with this test. When jaundice is due entirely to the hæmolytic type van den Bergh's test gives an indirect reaction. Therefore, between these two the test gives a definite method of distinction. But when the jaundice is due to incomplete obstruction, and in the toxic and infective forms, a biphasic reaction is seen, which probably indicates a combination of the first two types of jaundice in varying degrees, and therefore yields no definite information from a diagnostic point of view. Moreover, this mixed type of jaundice is the most common variety. Van den Bergh's test brings out some other interesting points; it shows clearly that there is a condition of latent jaundice, that is to say, there is excess of bile-pigment in the blood, but no clinical sign of jaundice. This occurs in cirrhosis of the liver, and so the test gives valuable help in surgical considerations of the gall-bladder and bile-ducts, for it is now beginning to be recognised that hepatitis, of more or less severity, is often present with gall-stones, &c. Again, in hæmolytic jaundice there is often a degree of cholæmia much above that which the kidneys would allow if it were due to biliary obstruction, which suggests that in the latter type there is something irritating to the kidneys lowering the threshold; indeed, in obstructive jaundice it is not uncommon to find albuminuria, and it is quite possible that the bile-salts are the irritating agents, as, of course, these do not get through into the blood in hæmolytic jaundice. Van den Bergh's test shows that bilirubin is increased in the blood in pernicious anæmia, but not to such an extent that the threshold value of the kidney for bile-pigment is reached, and biliuria results. In secondary anæmias, on the other hand—for example in malignant disease—there is no increase of bile-pigment in the blood.

Besides the different reactions to van den Bergh's test given by the sera in mechanical biliary obstruction and in hæmolytic jaundice cases, there are many clinical differences, which can be readily seen in the following table:—

—	Obstructive jaundice.	Hæmolytic jaundice.
Pruritus	Present.	Absent.
Urine	Bile stained.	Bile absent.
Fæces	Pale	Normal.
Bile-salts in blood..	Present.	Absent.
Pulse	Usually much slowed.	About normal; fast during crises.
Spleen	Not palpable.	Usually much enlarged.
Wasting	Rapid.	Weight maintained.
Red blood corpuscles	Increased resistance.	Increased fragility.

Some of these differences are undoubtedly due t the passing of large quantities of bile-salts into th blood. The bile acids are a combination of choli acid and amino-acid, of which there are two—glycin and taurin. Glycocholic acid is the one found i largest quantity in human bile. The bile acids occu in bile as sodium salts soluble in water. It is suggeste that cholic acid is formed from cholesterol, and tha a high cholesterol blood content is evidence of fault liver function in the formation of bile salts.

It is usually held that the slowing of the pulse i obstructive jaundice is due to the presence in the bloo of bile salts. I think there can be no doubt pruritu is also. This torturing symptom is only present i the obstructive type of jaundice, and then only in th earlier stages; with complete obstruction it is said th secretion of bile-salts ceases and pruritus passes o even while jaundice persists as deeply as ever. I ha noticed this over and over again in maligna obstruction of the bile-ducts.

Tests of Nitrogenous and Glycogenic Functions of the Liver.

Though Van den Bergh's test has given such interes ing information about bile formation, and provid great help in diagnosis, it does not tell us enou about the most important liver functions—viz., t nitrogenous and glycogenic, and from the point view of surgery it is essential we should have so knowledge of the liver in these capacities. Unfo tunately we have no absolutely infallible tests these functions, though there are two which gi information of some practical value; these are t dye test and the lævulose test.

Dye test.—After injecting phenoltetrachlorphthal intravenously, all but 3 per cent. is eliminated from t blood by the liver in 15 minutes or so; if the liver is diseas there is retention in proportion to the liver inefficiency.

Lævulose test.—This depends on the fact that when t liver is intact lævulose will not raise the blood-sugar c centration, whereas the ordinary sugars will; in patie suffering from definite lesions of the liver the lævul acts more or less like glucose, and causes a marked incre in blood-sugar concentration. As to the relation of t lævulose test to the degree of hepatitis often associa with gall-stone conditions, I am at present carrying out so investigations which I hope to publish later. The experime are not sufficiently advanced at the moment.

Before either of these tests give positive results th must be considerable changes, because probably o a part of the liver is called into action at any c moment, moreover the organ has an extraordina capacity for regeneration and hyperplasia on dema However, so long as this regeneration and hyperpla are sufficient to prevent any pronounced posit evidence of hepatic deficiency by the dye or lævul tests it is probably sound enough for surgical purpos

The de-aminisation of amino-acids is one of t important functions of the liver, and if it is not p forming this efficiently there will be a decrease in blo urea and an increase in the pre-urea bodies. Of cou in this respect the kidney function must be consider as deficient elimination of urea will ultimately ca an increased blood-urea even though the output fr

the liver is deficient. So far as the kidneys are concerned it may be said that if there is no increase of blood-urea, and the result of the urea concentration is satisfactory, the renal condition, in spite of the presence of albuminuria, casts, &c., does not contra-indicate operation.

Another important function of the liver is the detoxication of poisons and destruction of bacteria; of the efficiency of this function we have no laboratory measurement.

Value of Liver Tests to the Surgeon.

From the surgical point of view the van den Bergh test is of more use at present than any other. The patient's condition can usually be determined quite accurately enough for surgical purposes by clinical observations alone, but there are times when this test and the clinical manifestations do not agree, and this applies particularly to the condition of latent jaundice. In this there are no outward indications of jaundice, but the test shows high bilirubin values in the blood, though it is not established what degree of general hepatic insufficiency the defective bilirubin excretion indicates, there seems to be no doubt that in many cases of obstructive jaundice the polygonal cells are seriously damaged, so that a positive van den Bergh test may be regarded as giving presumptive evidence in latent jaundice of hepatic deficiency which is not manifest to ordinary clinical methods.

The importance of this revealed cholæmic state lies in the warning it gives as to the desirability, and occasionally the absolute necessity, for delaying operative procedures until certain measures have been taken to lessen the risks of operation, especially as regards postoperative hæmorrhage and hepatic failure. It is well known that patients with obstructive jaundice show an extraordinary propensity to capillary bleeding after operation. This is due to deficient calcium content of the blood. It is supposed that the toxic bile-pigment and salts are seized upon by the available calcium in order to reduce this toxicity, and so the calcium necessary to the process of coagulation is lost. Perhaps this is additional evidence of the change which bilirubin is supposed to undergo in passing through the liver cells, because this postoperative hæmorrhage is characteristic of obstructive cholæmia, although there is a great deal of bilirubin in the blood of the hæmolytic jaundice cases. The tendency to bleed may be due to some other cause than the bile-salts or pigment; anyway the indication is clear that more calcium is needed before operation; 10 per cent. calcium chloride in 5 c.cm. doses intravenously on three consecutive days will usually reduce the coagulation time to normal or thereabouts. One constant feature about these injections is the complaint by the patients that they experience at once an unpleasant feeling of heat all over the body. On several occasions I have taken the temperature whilst injecting the calcium and have found that, though normal before, it goes up during the sensation of heat to as much as 101° in some cases and rapidly comes back to normal. If the coagulation time still remains long after a course of calcium injections blood transfusion will often be found to reduce it temporarily—sufficiently long to enable operative procedures to be carried out successfully.

It is not uncommon to find a patient who has had a stone removed from the common duct, when there was no jaundice, react in a similar way as regards the tendency to bleed, as a jaundiced patient does. The van den Bergh test will show in these patients a state of cholæmia, and will be an indication for giving calcium before operation. The value of this preoperative preparation cannot be overstated. There is another practical point brought out by the van den Bergh test in jaundiced patients; it is possible to estimate whether the bile-pigment content of the blood is increasing or diminishing. If it is increasing the risks of operation are also increased, and there should be a postponement of the operation, if other considerations justify this; on the other hand, with decreasing values, operation may be performed with a risk little greater than when there is no jaundice at all.

Value of Glucose before Operation.

As regards hepatic deficiency, it has been shown that glucose has great value in protecting the liver cell from harmful agents, and as it is impossible to tell what is the precise state of these cells, glucose should be given as a routine. It may be given in unlimited quantities by mouth or in 5 per cent. solution by rectum, or in 3 per cent. solution in saline subcutaneously.

Glucose is not only used directly by the tissues, but it fulfils a very important function in maintaining the efficient combustion of fats. With insufficient glucose for this function the higher fatty acids do not undergo complete combustion and a state of acidosis develops. Constant vomiting and consequent starvation prevent an adequate supply of glucose, and the ill-effects are aggravated when the liver is not functioning properly. It may take weeks of careful treatment to bring these patients up to the state in which they can be considered reasonably fit for operation, and even then they will sometimes develop postoperative acidosis, especially after the use of chloroform. For this condition 10 per cent. glucose intravenously, controlled by insulin, sometimes works wonders. Chloroform should never be used. Whether chloroform produces its ill-effects directly on the liver, or on the tissues generally does not appear to be conclusively decided, but of its danger as an anæsthetic there is no doubt and especially when there is a pre-existing liability to acidosis. Gas, oxygen, and carbon dioxide is the ideal anæsthetic; and if anything more is required, as it usually is when stitching up the abdomen, the minimum of ether should be added.

Value of Water before Operation.

Another factor of the greatest importance before and after operation is water. Drabkin and Edwards have shown that in the hypoglycæmia due to insulin there is a shortage of water in the blood. Walters, Bolton, and Kligore have shown experimentally on dogs the value of water in preventing terminal renal insufficiency, which is very apt to occur along with hepatic deficiency. In their experiments not only did the urea progressively increase in the blood, but there was a fall in chlorides and an increase in alkalinity of the blood. When water and chlorides—especially water—were injected the blood-urea dropped.

Surgery in Various Forms of Jaundice.

For the type of jaundice which McNee in his classification includes under the heading toxic and infective jaundice surgery has as yet not been able to accomplish much. It cannot be relieved by operation on the distal side of the polygonal cells, but there is some hope that it may be in some early cases by tackling on the proximal side the focus from which the infecting agent is being delivered to the liver. In hæmolytic jaundice removal of the spleen gives beneficial results almost as good as in any other field of surgery.

With regard to obstructive jaundice the most helpful symptom in differential diagnosis is pain—real pain as distinguished from discomfort. Painful jaundice is virtually always due to stone; painless jaundice very seldom is, and in the former case the stone is almost always in the common duct; on the other hand, a stone in the common duct does not always give rise to clinical jaundice.

The surgical treatment of jaundice due to stone is the removal of the stone or stones and drainage of the common duct. As the gall-bladder is always diseased as well, it requires treatment, and in the presence of deep jaundice it is a surgical maxim, to which there are few exceptions, never to remove the gall-bladder, but to drain it and leave removal for another occasion. This is partly for the reason that cholecystectomy is accompanied by a much greater risk of postoperative hæmorrhage and partly because the rule should be to do the least that is compatible with efficient liver drainage in these

patients, who frequently have hepatic deficiency as well. The completely obstructed common duct will often be filled with "white bile"; this is a convenient term, but an inaccurate one, as the fluid contains neither bile-salts nor pigment, being the clear secretion from the cells lining the ducts. After inserting a tube in the common duct ordinary bile begins to flow again quickly as a rule; sometimes it fails to appear, and the patient dies. On other occasions normal coloured bile flows for a few days and then begins to get less and less pigmented, and the patient becomes progressively weaker, lethargic with a subnormal temperature, and usually vomits all that is taken by mouth. Jaundice does not as a rule deepen or appear if it was absent before. These patients always die in a few days as a result of this hepatic failure. Though it mostly happens after the relief of a complete obstruction, in much the same way as urinary secretion may fail after the removal of an obstructing prostate, yet I have seen patients fade out like this occasionally after cholecystectomy where there was no obstruction by stone in the common duct.

It is this kind of delayed biliary failure that preoperative treatment will do much to prevent, and the van den Bergh test will often prove useful in informing us of the threatening failure, and indicate the necessity for delaying operation until the patient has been brought into a safer condition.

As regards painless jaundice of the obstructive kind, the commonest causes are chronic pancreatitis, carcinoma of the pancreas, or more rarely of the bile-ducts, and pressure on the ducts from enlarged glands in the portal fissure. Nothing can be done for the latter. But undoubtedly for malignant disease which is causing a greatly distended common duct an anastomosis between the gall-bladder and the stomach or duodenum gives great relief. Pruritus, if present, disappears, though in my experience the stage in which itching is so troublesome is in the first few weeks, and frequently is passing away or has gone before the question of operation is put to the patient. Early operations in malignant obstruction of the common duct would save the patient much distress, for whilst pruritus exists it is a most torturing symptom. The liver is relieved of a great embarrassment after an anastomosis has been performed, the patient lives longer, and in greater comfort physically and mentally, for the disappearance of the jaundice leads him to believe that he has been cured of his complaint.

Chronic pancreatitis, when associated with jaundice, may be an instance of the painful or painless type. In the former case it is usually dependent on a stone in the ampulla, and the treatment is the same as that for stone without an accompanying pancreatitis. In the latter case, in the absence of any determinable cause—e.g., syphilis, arterio-sclerosis, &c.—it is usual to remove the gall-bladder on the assumption that this organ has infected the pancreas. The evidence of this is anything but conclusive; the gall-bladder may be greatly distended, which would be unlikely if it were in a state of chronic inflammation, and in these cases I believe the pancreas would recover whether the gall-bladder were removed or not. In view of the usual state of affairs—namely, that the liver is involved along with the pancreas, and the gall-bladder may or may not be—it is more reasonable to suppose they have all been infected from a common site, and that there is no reason, therefore, to remove the gall-bladder unless it shows unmistakable signs of disease. Prolonged drainage of the gall-bladder is not good surgery, in my opinion, for chronic pancreatitis; infection undoubtedly creeps in after this operation, and later the gall-bladder may have to be removed. The recurrence of symptoms after the biliary fistula has closed has been interpreted as a return of the pancreatic symptoms, whereas it is really due to the imposition of another complaint.

Jaundice coming on after operation, in the absence of an overlooked stone, is due to infection spread at the time of operation or to injury to the ducts. In either case it is painless. The ducts would never be injured if the surgeon took the trouble to see all the important structures before clamping anything. A tedious and often severe operation will be necessary to rectify the mistake.

Surgical Risks Run by a Jaundiced Patient.

It will be seen that the chief risks run by a jaundiced patient are hæmorrhage, hepatic and renal insufficiency, as well as those attached to unsuitable and improperly conducted operations. The clinical manifestations exhibited by the patient, together with the evidence furnished by the various tests, especially van den Bergh's, will enable the surgeon to gauge with considerable accuracy the physical state of his patient, and he can then improve it by the several pre-operative measures indicated. Good judgment, gentleness, and an accurate knowledge of what is being done during the operation will add to the safety of the patient, when the operation is conducted under the least dangerous anæsthetic. Operations on the bile-ducts are undoubtedly the most difficult of abdominal operations, and when the patient is deeply jaundiced they are the most risky; there is all the more reason, therefore, to do everything possible to reduce the risks. There is another danger—namely, pulmonary complications. In so far as these depend upon the renal and hepatic deficiency much has been done to eliminate them, but there appears to be other factors concerned, which at present we do not understand.

THE MORTALITY FROM HÆMATEMESIS.

AN ANALYSIS OF 526 CASES.

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THE results of this investigation act as confirmatory evidence of the writer's previous experience; that is that hæmatemesis in general is a grave condition with a much higher mortality than is usually admitted, and that the optimistic prognosis often given in cases of bleeding gastric and duodenal ulcers is not borne out by the facts that have been collected.

A systematic search of the records of the medical side of the General Hospital, Birmingham, was made for all cases admitted on account of hæmatemesis of a severe nature, and in a period of 24½ years between the beginning of 1902 and the end of July, 1926, 526 cases were discovered. Out of the 67 fatal cases post-mortem records were available in 53 cases.

In the following table the cases are divided into their several groups:—

Disease.	Total cases.	Deaths.	Autopsies.
Acute ulcers	218	19	15
Chronic ulcers	249	29	23
Cirrhosis of liver	25	8	7
Cancer of stomach ..	7	6	4
Portal thrombosis ..	1	1	1
Melæna neonatorum ..	2	1	1
Doubtful cases	24	3	2

Acute Ulcers.

It was found very difficult to separate the acute gastric and the acute duodenal ulcers; using the presence of the pyloric syndrome as the criterion of the duodenal ulcer it was found that out of the 199 cases that recovered only two had a history of duodenal ulcer. In the fatal cases the task was simpler, and of the 15 on whom autopsies had been performed 13 were gastric ulcers, one was a pyloric ulcer, and one was a duodenal ulcer. Of the four fatal cases without a post-mortem examination two had histories suggesting duodenal ulcers.

Mortality in the Acute Ulcers.—Excluding one case in which death was due to perforation of the ulcer

into the lesser sac there remain 18 deaths out of a total of 218 patients; of the 71 males 12 died—a percentage of 16·9; of the 147 female cases 6 died—a percentage of 3·1. In the 19 fatal cases post-mortem examinations were performed in 15 with the following results:—

Death from hæmorrhage	12 cases.
" " septic parotitis and septicæmia ..	1 case.
" " perforation into the lesser sac ..	1 "
" " cerebral thrombosis and anæmia	1 "

The cause of death in the four fatal cases who did not have an autopsy performed was hæmorrhage in each; thus in the whole series 16 died of hæmorrhage, one from septicæmia and parotitis, and one from cerebral thrombosis due to anæmia. The remaining case died from another complication of the ulcer.

Site of the Ulcers.

Lesser curvature ..	10 cases.	Pylorus	1 case.
Greater " ..	1 case.	Duodenum	1 "
Cardia	1 "	Petechial hæmorrhages at fundus	1 "

Severity of the Bleeding.—In order to give some idea of the type of cases that have been included in this series, as they were all treated according to the accepted methods of the day, and after a careful consideration of the fatal cases it was found impossible to determine any departure from the routine methods in their case.

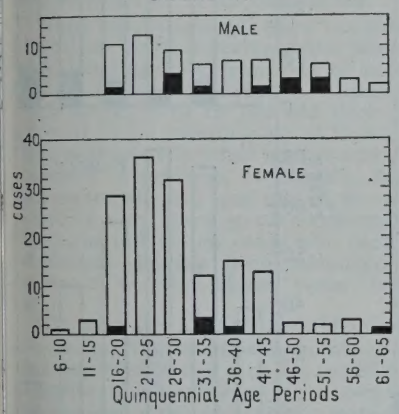
Chronic Ulcers.

The chronic ulcers will be dealt with under the same subdivisions as the acute ones in order that ease of comparison may be obtained.

Division into Gastric and Duodenal Ulcers.—Out of the 220 cases that recovered 14 had a history of duodenal ulcer, and of the 29 fatal cases in 23 an autopsy was performed—16 were gastric ulcers, five were pyloric ulcers, one was a duodenal ulcer, and in the remaining case there were coexisting gastric and duodenal ulcers. In the six fatal cases without autopsies the history of one suggested a duodenal ulcer.

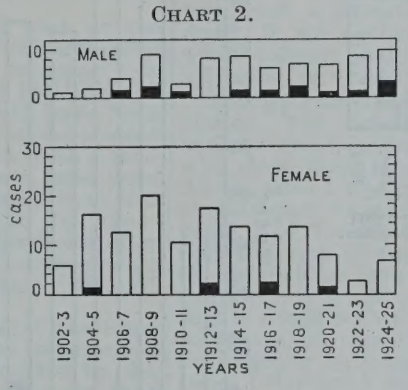
Mortality.—Out of a total of 249 cases there were 29 deaths—a percentage of 11·6; of the 89 males 15 died—a mortality of 16·8 per cent.; of the 160 females 14 died—a mortality of 8·7 per cent. In

CHART 1.



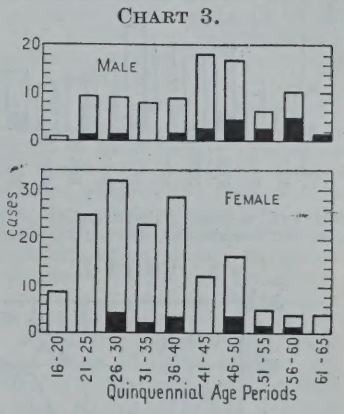
Age- and sex-incidence with the mortality in acute ulcers. (Deaths in black in Charts 1 to 6.)

CHART 2.



Sex and mortality distribution in two-yearly periods from 1902 to 1925. Acute ulcers.

CHART 3.



Age- and sex-incidence with the mortality in chronic ulcers.

analysis they have been divided into groups according to their severity, and it will be seen that the vast majority of the cases were admitted for a severe hæmatemesis. For the sake of convenience they have been further subdivided in this table into cases admitted in their first attack of hæmorrhage and those who had had previous attacks.

	First attack.	Recurrent attacks.
(*a*) Fatal cases	18 ..	1
(*b*) Very severe*	22 ..	2
(*c*) Severe	111 ..	18
(*d*) Moderately severe	18 ..	1

* Collapsed on admission.

The fatal cases were recruited, with one exception, from patients in their first attack.

Age- and Sex-incidence with the Mortality.—Chart 1 shows clearly the great difference in the age-incidence in the two sexes—the majority of the female cases occurred between the ages of 16 and 30 years, but the distribution of the male cases was fairly constant in the quinquennial periods between 16 and 55 years, with a slightly greater incidence, however, in the period of the highest female incidence. The greater mortality in the male cases is well shown.

Sex and Mortality Distribution in Two-Yearly Periods, 1902–1925.—It will be seen from Chart 2 that the female cases are on the whole tending to diminish in number, and that the deaths have been sporadic; the male cases, on the other hand, have tended to increase in number, and the mortality has been fairly constant, with a tendency to increase within the last two-yearly period.

Treatment.—It has not been considered necessary to enter into an analysis of the treatment of this

the 29 fatal cases autopsies were performed in 23 with the following results:—

Death from hæmorrhage	20 cases.
" " perforation into the portal vein and suppurative pyelophlebitis ..	1 case.
" " gastro-enterostomy done to check the bleeding	2 cases.

The cause of death in the six fatal cases who did not have an autopsy performed was hæmorrhage in five cases and terminal broncho-pneumonia in one case.

Site of the Ulcers.

Lesser curvature	16 cases.
Lesser curve and duodenum	1 case.
Duodenum	1 "
Pylorus	5 cases.

Severity of the Bleeding.—The cases have been classified according to the severity of the bleeding, but it was not considered necessary to divide them as to first attacks and recurrent attacks, as in the case of the acute ulcers. Out of the 29 fatal cases 7 had had severe hæmatemesis before the attack for which they were admitted.

(*a*) Fatal	29 cases.
(*b*) Very severe (collapsed on admission) ..	31 "
(*c*) Severe	148 "
(*d*) Moderately severe	41 "

Age- and Sex-incidence with the Mortality.—Chart 3 shows the difference in the age-incidence in the two sexes, but not to such an extent as occurs in the acute ulcers; there is a striking difference in the mortality, and the rise in the male death-rate at the later age-periods is well shown.

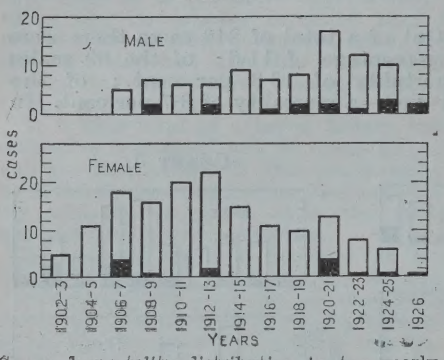
Sex and Mortality Distribution in Two-Yearly Periods, 1902–26.—Chart 4 shows very much what was brought out in the corresponding table for the acute ulcers—namely, that the female cases have

shown a tendency to decrease in number, while the male cases have displayed the opposite tendency, and their mortality has been greater in the later periods. In the incomplete year 1926 all the cases of chronic ulcer treated ended fatally.

Acute and Chronic Ulcers.

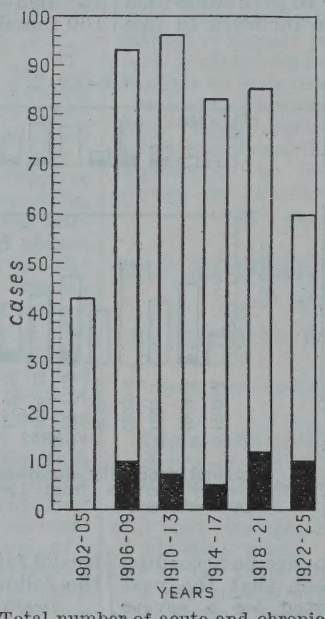
It is instructive to consider the acute and chronic ulcers together for some purposes. In Chart 5 the number of fatal cases and of total cases has been plotted together, and an increase in the mortality since the end of 1917 was discovered. Chart 6 shows the total number of acute and chronic ulcers divided into male and female cases with their respective mortalities over the same period, and in Chart 7 the total, the male and the female percentage mortalities have been plotted in order to show how the increased death-rate has been distributed. In all of these charts the number of cases has been reckoned over four-yearly periods.

CHART 4.



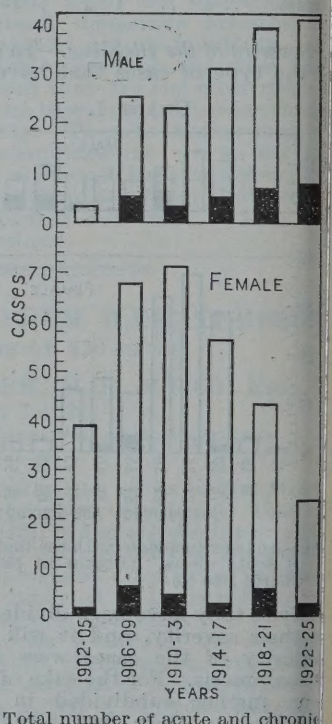
Sex and mortality distribution in two-yearly periods from 1902 to 1926 (July). Chronic ulcers.

CHART 5.



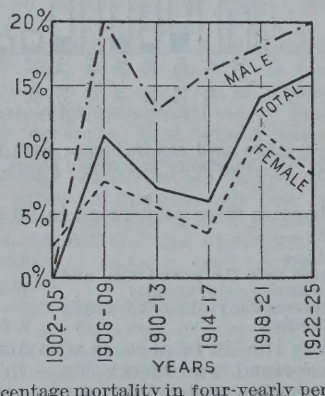
Total number of acute and chronic ulcers with the mortality in four-yearly periods from 1902 to 1925.

CHART 6.



Total number of acute and chronic ulcers divided into male and female cases in four-yearly periods from 1902 to 1905.

CHART 7.



Percentage mortality in four-yearly periods from 1902 to 1925. Total, male, and female.

Operations upon Acute and Chronic Ulcers.

The question of operations was considered under two headings, those performed as a method of treatment of the hæmatemesis, and those which were performed upon a patient who, at a later date, developed a hæmatemesis. The operative history of the series is set out below :—

(*a*) *Acute Ulcers.*—Two cases were operated upon ; in one this was done in convalescence and nothing was found except some adhesions between the duodenum and the gall-bladder. In the second case a gastro-enterostomy was performed with a Murphy's button as treatment for the bleeding, and the patient recovered.

(*b*) *Chronic Ulcers.*—In 12 cases who had had a gastro-enterostomy done for a gastric or duodenal ulcer some time previously a hæmatemesis occurred (not as a post-operative complication) and two of them died. At the autopsy the ulcers were found to be unhealed.

Five cases had had an appendicectomy done some time before, and one of them died of hæmatemesis.

Three cases had a gastro-enterostomy done as a method of treatment of the bleeding, and two of them died.

Three cases had a gastro-enterostomy done during convalescence.

Cirrhosis of the Liver.

Twenty-five cases of cirrhosis of the liver were admitted with profuse hæmatemesis and 8 of them died ; in 1 case there was no autopsy, and in the remaining 7 cases the source of bleeding was a ruptured œsophageal varix in 5, and it could not be found in the remaining 2 cases.

Cancer of the Stomach.

Out of seven cases admitted with profuse hæmatemesis six died and in four of them autopsies were performed. The causes of death were as follows :—

Eroded pancreatic vessel	2 cases
„ splenic artery	1 case.
Oozing from eroded splenic pulp	1 „

Portal Thrombosis.

The patient was admitted unconscious as an acute gastric ulcer, and died in a few hours. The post-mortem examination showed a portal thrombosis with no discoverable cause.

Doubtful Cases.

Twenty-four cases had to be included in this group :—

No case notes	10 cases
? Cirrhosis	3 „
? Carcinoma	3 „
No diagnosis was made	2 „
? Banti's disease	2 „
? Purpura hæmorrhagica	1 case.
Death from hæmatemesis with no post-mortem	1 „
Death from hæmatemesis in a case of renal infantilism—no source of bleeding at post-mortem	1 „
Death from hæmatemesis—post-mortem ? leukæmia	1 „

Melæna Neonatorum.

There were two cases of this condition, one was before the introduction of the modern treatment, and it died; the autopsy revealed no source of bleeding. The other was successfully treated by the intramuscular injection of the paternal blood.

Causes of the Increasing Mortality.

The causes of the increased mortality from acute and chronic ulcers are not at first sight obvious; Chart 7 shows that the total mortality has been rising since the end of 1917, but the rise has been better sustained among the male cases; the type of case has not altered materially during this period as it does not include the cases of hæmatemesis in young females of the type met with at the beginning of the century in association with chlorosis. The sex distribution of the cases has, however, altered in so far as the number of male cases with their higher mortality has risen and the number of the less fatal female cases has fallen. This will account to some extent for the rise in the total mortality, but the rise in the male mortality still remains to be accounted for.

Many explanations were considered such as the alteration in the severity of the cases reaching hospital with the improved methods of motor transport; it seemed to be a reasonable supposition that cases of such severity as in the old days would have been allowed to die comfortably at home are at the present time entrusted to a fast motor ambulance with a good prospect of arriving at hospital before a fatal issue has occurred. An analysis of the statistics from this point of view gave some confirmation to this hypothesis, as out of ten cases who died a few hours after admission—having been admitted unconscious—six occurred in the eight years between 1918 and 1925.

Whether any alteration in the method of treatment can be incriminated is a point of some importance, and one which will not be readily admitted by the majority of physicians. It is certain, however, that the amount of morphine given latterly has been greatly in excess of that used 20 years ago when a certain amount of caution in its use was advised. Morphine, as far as a study of the treatment sheets can be regarded as reliable testimony, was given at the outset to relieve pain, but the dose was small and not often repeated; the contrast with present-day methods is striking, and in no other method of treatment adopted has the change in usage been so noteworthy. The advisability of using morphine in large doses must, therefore, be questioned.

Summary.

1. An analysis of over 500 cases of severe hæmatemesis is presented with post-mortem reports upon 53 of the 67 fatal cases.

2. The mortality from acute gastric ulcer was 8·3 per cent.; in the males it was 16·0 per cent.; in the females it was 8·7 per cent.

3. The mortality in the chronic ulcers was 11·6 per cent.; in the males it was 16·8 per cent.; in the females it was 8·7 per cent.

4. The mortality from bleeding ulcers has risen during the last eight years, and some of the causes for this are discussed, with a plea for moderation in the use of morphine.

5. The cases of hæmatemesis other than in acute and chronic ulcers are tabulated, consisting of hepatic cirrhosis, carcinoma of the stomach, melæna neonatorum, portal thrombosis, &c.

6. Attention must be drawn to the fact that the mortality is much higher than the accepted one of 6 to 6 per cent.

In conclusion the writer must express his thanks to the members of the honorary medical staff of the General Hospital, Birmingham, for allowing him to publish the cases.

THE PREVENTION OF PYORRHŒA.

BY F. D. DONOVAN, L.D.S.R.C.S.,
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THE cure of pyorrhœa has occupied the minds of most of the thinking dental and medical men during this last quarter of a century. The progression of the disease and the realisation of its possible consequences have led to much mental effort being bestowed upon it. The treatments are many, by quacks and scientists, hopeful and unhopeful, mostly expensive, and the cures are all doubtful. Efforts of the dentist, scaling, mouth-washing, home cleansing, and treatment in many cases do nothing but put off for a few years the inevitable result. Most dental practitioners have seen cases in early life, which they realise, if they are honest with themselves and their patients, must become before 40, cases of intractable pyorrhœa.

In acute stages much can be done to put off the inevitable extractions; but it is the slow chronic case, with apparently no cause, that resists all treatment, if we exclude the temporary improvement which follows local treatment, scaling, polishing and syringing, or a rise in the health index.

This pyorrhœa is universal and seems to attack all classes. The chronic cases are often more evident in those who take most care of their teeth—i.e., those who clean their mouths three or four times a day. At one time I was convinced that at the root of this chronic gum disease was the tooth powder or tooth paste, and I worked for some considerable time to find a source of common irritation which prepared the ground for future diseases. I looked for something which would so constantly irritate the mouth that it would reduce the membranes to a state of low resistance, so that the activating cause would have no difficulty in operating when it came along. At times I thought I was on the right track, only to find a series of patients who upset all my ideas and theories by having perfectly healthy mouths.

There is only one constant feature in all cases of chronic gum irritation. It is an article which is used by practically everybody in this country, and practically everybody amongst so-called western civilisation—I refer to the tooth-brush.

The Septic Tooth-Brush.

I am quite prepared to affirm that there is no tooth-brush, or there are very few tooth-brushes in the world to-day, that are not septic. I have examined very many, my own included. In point of fact I started with my own, taking a few bristles out and examining them bacteriologically myself. I was surprised to find my own tooth-brushes septic. Believing that the easiest person to carry out experiments on is oneself, I threw them away and bought some more. These were sterilised and examined, and found to be clean. They were then used in the ordinary way, with ordinary tooth-paste. They were washed, dipped in a mild mouth-wash, and put in the rack. Before the next tooth-brushing, some 12 hours later, they were examined again—still septic. This was repeated using different pastes and mouth-washes, &c. The brushes were also hung in the sun outside the window before being put in the so-called antiseptic cases supplied by the manufacturers. The result was invariably the same. I extended these examinations on many men living in the same club as myself. The net result was again the same.

My method of examination was to take, in the first place, a few bristles. If they were found to be septic that was quite enough. If they were clean, more were taken. I found that when examining the tooth-brush after 12 hours' rest—that is, before the second using—every bristle was septic. But when the tooth-brush was examined immediately after using, great bunches of bristles were found to be clean; so that I might safely say that immediately

after use the tooth-brush was slightly septic, but after 12 hours in the rack or case it was strongly septic. In reality, the infection was being incubated in the case for 12 hours.

Summary of Bacteriological Examinations.

Brushes examined, 500 ..	All these in common use. All septic in varying degrees.
„ „ 150 ..	Streptococcus isolated from 144.
Sterilised and examined, 40 ..	All clean.
Same brushes as above (40) examined immediately after use	Streptococcus found in few of the bristles in each brush. Many bristles quite clean. Patients were a mixed lot taken from ordinary practice.
Forty new brushes. Sterilised and used by same patients as above. The brushes were allowed to stand in rack after being used and washed in the ordinary way	All found to be septic in varying degrees. Streptococcus isolated from 37 of the 40.
Forty brushes used by same patients in the ordinary manner and immediately placed in some disinfectant (any ordinary one)	After 12 hours 36 were found to be clean, while four were slightly septic. Pyorrhœa alveolaris cases already.

Mechanism of Infection.

The infected tooth-brush is covered with what is, at the best, a mild antiseptic paste, and applied to the mouth. The infection from the mouth is incubated and then rubbed on the gums and spread over the mouth. Not content with this, scratches are made in the gums so that the infection takes even a better hold. With the average person this is done twice a day for a period extending over many years. It is started on the great day when baby first has a tooth-brush. It is common knowledge that while there are bacteria in the mouth they are to all intents on the surface of the body. Where scratches are made, infection is let in. The infection is encouraged, and at the age of 23 or 24 the gums are not what they should be. This fact is pointed out to the dentist, who polishes up the teeth, paints them with iodine, and tells the patient to use some mouthwash, and temporary improvement occurs. This slowly goes on until the inevitable pyorrhœa has begun, with its consequent terrors of treatment, if any, and same ultimate result—full upper and lower cases.

The Remedy.

I have made a series of tests with my own tooth-brush with a view to eradicating this trouble. I found that placing a tooth-brush in an antiseptic for four or five minutes after use did not interrupt the incubation of the bacteria; and it certainly did not render the brush sterile. I have, therefore, come to the conclusion that there is nothing for it but to leave the brush immersed in a fairly strong antiseptic the whole of the time it is not in use.

I have put a sterile brush after use in 1–20 carbolic, and have continued to use it without it becoming infected. This is very hard on the brush, but a very good thing for the tooth-brush manufacturers. The only tooth-brush that will not become slimy with constant immersion in fluid must be made of a much stiffer and thicker material than those that are generally used to-day.

The prevention of much gum trouble lies in the non-use of septic brushes. As tooth-brushes have become a necessity in modern life, great care must be taken to see that they are kept clean in the manner stated. I do not suggest that septic tooth-brushes are the activating cause of pyorrhœa alveolaris, but I do suggest most strongly, that once the public realise this danger and deal with it, the number of cases of pyorrhœa will diminish to the small percentage that existed before the use of tooth-brushes became so prevalent. I do not say that no cases of pyorrhœa alveolaris will exist. Pyorrhœa alveolaris existed before tooth-brushes were thought of. The modern prevalence of the disease is due to the way in which the mucous membranes of the mouth are irritated and their resistance lowered by these septic brushes.

I have traced the source of the disease in Greenland and Iceland. The prevalence there has been put down to the incoming of western civilisation and diet. The Kaffir in South Africa has been similarly affected. The civilised diet and mode of living of the Eskimo and the Kaffir are poles apart, although the origin is the same. The one thing they have now in common is the filthy tooth-brush, and in its train comes the prevalence of pyorrhœa alveolaris.

Conclusion.

In conclusion, I emphasise that pyorrhœa alveolaris is in no way actively caused by the dirty brush; but that the ground is so prepared by this constant irritation that the membranes fall an easy prey to the disease, should other predisposing conditions arise. Whatever may be the activating cause, these filthy brushes are at the root of 90 per cent. of the cases, and the prevention is in the patients' own hands. The few cases which occur independently of brush irritation could all the more certainly be dealt with.

Clinical and Laboratory Notes.

A CASE OF SELF-INDUCED "REDUCTION EN MASSE."

BY PHILIP HAWE, M.B. LIVERP., F.R.C.S. ENG.,
SURGICAL REGISTRAR AND ASSISTANT, NORTHERN HOSPITAL, LIVERPOOL.

THE dangers of taxis in cases of strangulated hernia are, of course, well known, but the following account may emphasise how very little pressure, even by the patient himself, may be sufficient to cause disaster.

A man, aged 30, a bridge-builder, had reduced his right inguinal hernia without difficulty many times during the last five years. Recently he had a *little* more trouble than usual but succeeded in reducing it with only slight discomfort. But after this—with the exception of one small motion, presumably from the intestine below the hernia—constipation became absolute and the symptoms of acute intestinal obstruction developed. Vomiting commenced on the fifth day, and on admission to the hospital on the sixth day the abdomen was moderately distended and the patient rather collapsed. No abnormality was to be found in the region of the hernial orifices nor was there any localised tenderness.

Operation revealed a "reduction en masse"; the whole sac had been displaced from the inguinal canal into a pre-peritoneal position—it was not an example of reduction from a main sac into a properitoneal diverticulum—and the neck of the sac was strangulating three inches of the small intestine contained therein. The gut recovered sufficiently on section of the constricting band and prolonged application of hot saline, to allow of its return into the abdomen. Unfortunately, the patient died from paralytic ileus two days later.

This illustrates how gentle must be taxis, if employed at all, in cases of hernia. It would be unreasonable to discredit the patient's account of the force used by him, or the slight amount of pain he caused himself during the reduction of the hernia, and yet he was able to displace the sac and its contents from the inguinal canal.

I am indebted to Mr. J. H. Rawlinson, of the Northern Hospital, for permission to publish these notes.

ANALYSIS OF SOME UNUSUAL INTESTINAL CONCRETIONS.

BY A. WOODMANSEY, M.Sc.,
ANALYST, HARROGATE CORPORATION.

THE scybala were passed by a patient taking intestinal lavage treatment at Harrogate with alkaline sulphur water—viz., the Harlow Spring. At the second treatment large membraniform casts of mucous matter came away. A similar removal followed each treatment until the fifth, when the patient passed 12 ha

scybala coated with mucus. There was no hæmorrhage. Five of the concretions were taken for examination.

Analysis.

Weight of five scybala (representative of the 12)	2·5 oz.
Moisture and volatile matter (110° C.)	51·6 per cent.
Alcoholic extract, highly fluorescent.	
Aqueous extract (a reddish-brown gummy material)	3·3 ,,
Dry insoluble residue (showed under the microscope a granular appearance but no characteristic structure beyond the presence of a few hair-like fibres)	45·1 ,,

From the dried material the following constituents were isolated. Acid radicles, PO_4, SO_4, and Cl, were not estimated. The percentages are calculated on the undried specimen.

Unsaponifiable fat, cholesterol, &c.	4·5 per cent.
Saponifiable oil	1·4 ,,
Silica and insoluble matter	0·1 ,,
Bismuth oxide	0·69 ,,
Ferric oxide	traces.
Calcium oxide	3·00 ,,
Magnesium oxide	2·45 ,,
Protein substance (calculated from Kjeldahl estimation)	15·6 ,,
Carbohydrate substance (calculated from Fehling estimation)	19·6 ,,

Notes.

Seven weeks previously the patient had taken a bismuth meal prior to radiological examination. As the bismuth content is low it is probable that the scybala were present in the intestine long before the meal. Lavage with saline solution in a nursing home had been unsuccessful in removing the cause of trouble. The inorganic bases apart from the bismuth are normal constituents of excreta.

NOTES ON SEVERAL ABNORMALITIES IN THE SAME PATIENT.

By MAURICE E. M. JAGO, M.B., B.S. LOND.,
SENIOR HOUSE SURGEON, BLACKBURN AND EAST LANCASHIRE ROYAL INFIRMARY.

THE following case is of interest in view of the variety of conditions found :—

A woman, aged 22, was admitted to the Blackburn and East Lancashire Royal Infirmary on May 21st, 1926. She had been recommended for operative treatment for a left inguinal hernia, and a note had been made that she was suffering from phthisis. Preoperative routine examination in the ward elicited the following history and clinical facts.

She had noticed a swelling in her left groin for about six months. For as long as she could remember she had suffered from a bad cough and had received treatment for the same in the Royal Infirmary, Manchester. The family history was good and no history of tuberculosis was obtained.

On examination of the left groin and upper part of the left thigh a swelling appeared when the patient coughed. This swelling was in the upper part of the thigh on the inner side, distal to Poupart's ligament and distal and external to the spine of the pubes. There was an expansile impulse on coughing. The swelling was easily reducible and did not reappear during recumbency except on coughing. A diagnosis was made of left femoral hernia (? saphena varix); there was no varicosity of the veins of the leg.

The patient had a continuous cough. She had pigeon-breast deformity of the chest, but movement on respiration was good. Tactile vocal fremitus was increased on the right side; the right apex was dull to percussion, and on auscultation the breath sounds were bronchial in type. There was suspicion of a cavity at the level of the third or fourth rib, indicated by post-tussive suction. Râles were heard all over the right side of the chest.

On continuing the examination of the chest, cardiac dullness was not obtained on the left side. The position of the heart was eventually discovered to be well to the right side of the middle line, and this was at first thought to be due to a fibroid condition of the right lung. On examination of the abdomen, however, the liver dullness was made out on the left side, while the stomach resonance was under the right costal margin. Finally, on examination of the back, it was noted that the spinous processes of the lower vertebræ were bifid.

An X ray examination revealed complete transposition of the heart, stomach, intestines, and liver. An opaque meal revealed normal gastric and duodenal shadows. No abnormality was seen in the lower ileum, cæcum, and ascending colon, the latter, of course, being on the left side of the abdomen. The right lung appeared smaller than the left, and was less luminous in the upper lobe and middle portion. The film showed irregular mottled density involving especially the middle portion of both lungs. A radiographic diagnosis of bronchiectasis was made.

No operation was performed on account of the condition of the chest, and the patient was discharged on June 16th. Throughout her stay in hospital her temperature was subnormal, the respiration-rate about 20, and pulse-rate 80 to 100.

My thanks are due to Dr. H. C. Lees, under whose care the patient was admitted, for permission to publish this case.

Medical Societies.

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE seventeenth annual meeting of this Congress was held at Oxford from July 7th to 9th under the Mastership of Mr. PHILIP H. ADAMS. After the formal opening a discussion was held on the

RESULTS OF OPERATIVE TREATMENT OF GLAUCOMA.

Dr. WILLIAM H. WILMER (Johns Hopkins Hospital, Baltimore) began by referring to the work of von Graefe who, in 1857, wrote concerning glaucoma "the absence of general agreement constitutes an hereditary evil of therapeutics only to be cured by slow degrees . . . The only treatment from which relief can be expected is one that diminishes pressure." That both these propositions are true to-day, said Dr. Wilmer, is attested by the fact that over sixty operative procedures, with many modifications, are on record, all of which are devised solely for the purpose of reducing intra-ocular tension. An analysis of a few of the kinds of operations and their results as reported by various authors is as follows :—

Iridectomy.—482 cases : successful, 63·3 per cent. No late infection mentioned.

Anterior sclerectomy (Lagrange).—777 cases : successful, 72·8 per cent. Late infection (based on 389 eyes), 1·3 per cent. Lagrange's own cases, 104 : successful, 85·5 per cent.

Sclerocorneal trephine (Elliot).—3381 cases, not including 911 eyes operated upon in Egypt : successful, 77·6 per cent. Late infection, 1·2 per cent.

Punch (Holth).—Holth publishes the record of 200 cases in Christiania from 1920 to 1923. The percentage of successes is not given, but he states that there were no late infections, and concludes : "The lowering of the ocular pressure is as good as in the other forms of sclerectomy and, so far, no case of late infection has been observed." Hagen records 52 cases operated by Holth, H. Schiotz, and himself. Of these he excludes 12, confining his tables to 40 cases of glaucoma simplex. Successful, 82 per cent. Butler reports 29 cases : successful, 79·3 per cent. Late infection, 3·4 per cent. Later he reports 39 cases : successful, 66·7 per cent.

Iris incarceration.—517 cases, iridotasis and iridencleisis : successful, 87·4 per cent. Late infection, 0·3 per cent.

Wedge-isolation and small flap. Sclerotomy (Herbert).—The author has given up the former operation for the small flap sclerotomy. The reports are too few to analyse. Butler quotes seven cases (small flap). Successes, 50 per cent., but this in no way indicates the excellent results obtained by the skilful originator himself.

Cyclodialysis (Heine), 1027 cases : successful, 66·7 per cent. No serious complications mentioned.

Dr. Wilmer said that whilst he employs iridectomy, anterior sclerectomy, and cyclodialysis, he more often uses the trephine operation. He presented two series of his own trephine cases.

Series 1 (private cases).—Of these 72 eyes 76·3 per cent. of the whole number have been under observation from 10 to 15 years ; 19·4 per cent. from 5 to 10 years ; and 4·1 per cent. from 3 to 5 years. Successes, 84·8 per cent. ; failures, 15·2 per cent.

Series 2.—35 cases (private and free), trephined within two years (none within four months), are reported for

comparison. Successful, 91·3 per cent.; partial failure, 5·7 per cent.; complete failure, 2·8 per cent.

In these cases, said Dr. Wilmer, success meant a tension of 18 or under (Schiotz reading), with a maintenance or improvement of the vision and the fields of vision as compared with that before operation. Causes of failure were previous venous thrombosis, tuberculous deposits filling trephine openings, traumatic dislocation of lens 10 years after a successful operation, rapid development of immature cataract after hæmorrhage, and repeated retinal hæmorrhages. In 19 of the second series of cases, a Tenon's capsule implant was made use of, a valuable procedure where the conjunctival flap is too thin and as a prevention against late infection.

Dr. Wilmer showed a series of slides of the eyes of rabbits and dogs, upon which anterior sclerectomy, sclerocorneal trephine, wedge isolation, small flap sclerotomy, and iridotasis had been performed. After commenting on the various types of operation, he said that every operator is more skilful in the performance of the operation he selects, but for the average the trephine is more safely and easily performed than the Lagrange or punch operation. It is also suitable for more kinds of glaucoma and in eyes with very high tension. In the Lagrange operation, if the pressure is high, there is more danger of expulsion of the lens and loss of vitreous at the time of the operation or later. Few operators have the skill of the originator of the excellent operation that bears his name. When the surgeon has much operative material, so that he can perfect his technique in both the Lagrange and Elliot operations it is a practical plan to perform an anterior sclerectomy when the tension is below 35 (Schiotz), and to trephine when the tension is higher than this.

Discussion.

Prof. FELIX LAGRANGE (Paris) referred to his performance of sclerecto-iridectomy for the first time in England at the Oxford meeting held in 1906. He had never seen infection follow his operation.

Mr. A. L. WHITEHEAD (Leeds) said that, after trying other procedures, his rule now was to perform iridectomy in case of acute glaucoma and to trephine for chronic glaucoma. An analysis of 120 of his private cases, chosen because the records were more complete than in hospital cases, was as follows :—

Of 38 *acute cases:* 57·9 per cent. were successful, 26·3 per cent. partially successful, and 15·7 per cent. failures.

Of 14 *subacute cases:* 85·7 per cent. were successful, 14·3 per cent. partially successful, and there were no complete failures.

Of 48 *chronic cases* 87·5 per cent. were successful, 4·1 per cent. partially successful, and 8·3 per cent. failures.

Lieut.-Colonel H. HERBERT (Brighton) considered that successful results were obtained with his small flap operation especially if massage was regularly applied afterwards. With regard to iris-inclusion he thought there should be a distinction made between disasters at the time of operation and simple failures to relieve tension, and he felt that there ought to be no danger of sympathetic ophthalmia provided that proper aseptic precautions were undertaken before the operation. His belief was that the future lay with the small linear wounds either with or without iris inclusion.

Mr. MALCOLM HEPBURN (London) said that his operative experience had forced him to the conclusion that not all forms of glaucoma could be explained on the same pathological theory, but that different pathological conditions accounted for the various types of the disease. It followed from this that the results obtained by applying one type of operation for all forms of glaucoma would be variable, and it was necessary for the surgeon in order to be successful to select the type of operation suitable for the case he had in hand. Good results would depend upon this and upon operating early; bad results would follow late or unsuitable operation, mistakes in technique and secondary complications over which the surgeon had no control.

Lieut.-Colonel R. E. WRIGHT (I.M.S.), agreed with Dr. Wilmer in his support of trephining as opposed to cyclodialysis and was interested in the method described by him for obtaining an extra cover of tissue over the trephine hole. He also favoured a broad iridectomy in cases in which he feared a "desquamation of uveal tissue" or "iritis" as it was termed. Massage was of value in all cases although there was really no necessity for it after trephine operations.

Dr. C. F. BENTZEN (Copenhagen) reported the results of 72 cases of trephining in which he had separated the conjunctiva from the limbus instead of from above as in the usual Elliot method. Of the 72 cases, 6 were those of buphthalmia, 4 of acute glaucoma, 14 of absolute glaucoma, and 48 of chronic glaucoma. No case of late infection had occurred. There were poor results in the buphthalmia cases and also in those of absolute glaucoma. In the acute cases the results were moderately good and in the 48 cases of chronic glaucoma there were 77 per cent. of successes.

Prof. J. SZYMANSKI (Wilno) described his modification of Elliot's operation in which he made use of a large trephine cutting obliquely a semi-circle of sclera which was then excised with scissors.

Mr. HARRISON BUTLER (Birmingham) referred to the mental complications of operations on elderly decrepit patients. In iridencleisis operations he had found that no result was obtained—i.e., neither fall of tension nor untoward complications. After trephining a shallow anterior chamber might follow, which if persistent led to the formation of a nuclear cataract. He had observed the fall of tension in the fellow eye after a successful operation on the one.

Mr. R. C. DAVENPORT (London) referred to the analysis of some 536 cases of glaucoma, 405 being primary, which had been trephined at Moorfields by various surgeons in the last five years. The results obtained were according to vision only. These had been reported fully in the *British Journal of Ophthalmology* (1926). In only two of the 536 cases did mental disturbance occur; there were 14 cases of late infection, of which, however, only 8 were definitely in connexion with the trephine hole.

Dr. HARALD GJESSING (Drammen) spoke of having had 81 per cent. of good results by Holth's method the cases having been under observation from 6 months to 11 years.

Mr. J. GRAY CLEGG (Manchester) considered that detachment of the choroid was a much more frequent result than was usually thought, even occurring, he thought, in 10 per cent. of cases.

Mr. B. GRAVES (London) referred to cases of persistent low tension after operation, in one of which shrinking of the eye had followed.

Mr. D. V. GIRI (Eastbourne), speaking of the fluorescin test for filtration, commented on the variations in tension which occurred during the day.

Lieut.-Colonel A. E. J. LISTER (Bristol) asked for an expression of opinion on the question of low tension after operation, which he regarded as a very alarming complication.

Dr. WILDER (Chicago) said that all the operations had been tried in America, and the fact that no definite conclusions had been reached was good evidence that none of them was perfect. The best thing would be for one surgeon to perform all the various procedures for comparison. He personally was in favour of the iris-inclusion operation, having only had one unsatisfactory case in 100 operated on by this method.

Dr. WILMER, in reply, said that expulsion of the lens after the Lagrange operation was, according to the literature, a not uncommon complication and the accident had once been recorded after a trephine operation. He had never experienced separation of the choroid in his own practice, but had seen two cases in consultation, both of which promptly got well. He had had cases of very low tension after both trephining and the Lagrange operation, but had

never had an eye in which there was delayed formation of the anterior chamber.

DEMONSTRATIONS AND LECTURES.

On Thursday afternoon, after Prof. LAGRANGE had read a paper on Fistulisation of the Glaucomatous Eye, demonstrations were held in the Scientific and Commercial Museums.

Lieut.-Colonel WRIGHT demonstrated Green's apparatus in intracapsular extraction of cataract and his own method of blocking the main trunk of the facial to prevent squeezing in cataract operations. He also showed a series of histopathological slides of orbital neoplasms.

Dr. J. BURDON COOPER (Bath) demonstrated a new astigmatic test chart.

Dr. THOMSON HENDERSON (Nottingham) demonstrated in an ox eye the membranous nature of the ligamentum zonulæ ventis by injecting air through the ligament into the canal of Petit, thus showing that it is a closed space.

Dr. H. H. TYSON (New York) exhibited a series of skiagrams of the optic foramen showing the variations in size and shape from the normal, and demonstrated the effect which the narrowing of the canal had upon the optic nerve, causing atrophy.

Mr. D. V. GIRI showed a photograph of an apparatus for red-free ophthalmoscopy and a lid-retractor which raised the lids free from the globe as well as retracting them.

Mr. F. A. ANDERSON (Shrewsbury) showed an operating light obtained by a series of small lamps.

Mr. B. CRIDLAND (Wolverhampton) showed the drawing with specimen and slides of a case of cholesterin crystals in the anterior chamber.

The chief feature of the proceedings on Friday morning was the Doyne Memorial Lecture by Prof. K. K. K. LUNDSGAARD (Copenhagen), whose subject was the Pneumococcus in Connexion with Ophthalmology. He showed a chart of the incidence of the pneumococcus on the normal conjunctiva as determined by various observers since 1909, the latest record being that obtained by himself in 1925—namely, 6 per cent. The various types of the micro-organism were described and charted according to their virulence. Other charts were shown giving the incidence according to age and seasonal variation. At the end of his lecture Prof. Lundsgaard was presented with the Doyne Memorial Medal for the year.

Other papers were delivered by Dr. CARSTEN EDMUND, Lieut.-Colonel WRIGHT, and Dr. HOLGER MAHLERS.

Friday afternoon was spent at the Oxford Eye Hospital where a series of interesting cases were shown by the Master, and by Mr. HARRISON BUTLER and Mr. HARRIES JONES. On Saturday morning papers were read by Dr. COOPER, Dr. MARGARET ROBSON, Dr. HARALD GJESSING, and Mr. GIRI.

The annual dinner of the Congress, which was well attended, was held in Keble Hall on Thursday evening with Prof. ARTHUR THOMSON as chief guest. Members who attended from abroad, in addition to those already mentioned, included Dr. H. Friedenwald (Baltimore), Dr. Bernard Samuels (New York), Dr. Birger Malling (Bergen), Dr. A. Verwey (Durban), Dr. R. G. Stott and Dr. A. S. Anderson (Australia), and Dr. Pandit (India). The total membership of the Congress is now over 400, and the attendance this year was well over the average.

BETHNAL GREEN HOSPITAL.—New casualty and receiving wards have been opened at Bethnal Green Hospital. Owing to the heavy increase in the number of casualties brought there by London County Council ambulances, the work of the hospital steadily develops. In 1923–24 these cases numbered 266; in 1924–25, 460; and in 1926, 752. In the new wards there is good accommodation for men and women.

WANTAGE COTTAGE HOSPITAL.—The new Cottage Hospital at Wantage was opened recently by Princess Helena Victoria. The hospital, built in red and grey concrete, faces south, and contains private wards for both men and women, as well as general, maternity, and children's wards, all having access to a verandah. There is an operating theatre, and the latest ultra-violet ray treatment is provided in the clinic.

Reviews and Notices of Books.

PREVENTIVE MEDICINE.

An Introduction to the Practice of Preventive Medicine. Second edition. By J. G. FITZGERALD, M.D., LL.D., F.R.S.C., Professor of Hygiene and Preventive Medicine, and Director, School of Hygiene and Connaught Laboratories, University of Toronto. London: Henry Kimpton. 1927. Pp. 792. 35*s.*

ADAPTATION of the principles of hygiene to the peculiarities of local climates and social conditions, together with the rapid extension of public health practice, has led in recent years to the production of numerous text-books. Within the past year we have reviewed several manuals which cover, in a sense, common ground, but in which the point of view varies with the social development of the country for whose nationals the books are intended. Thus, for India apparently sanitation is still the most urgent need; British text-books bravely try to cover the whole field of hygiene and tend, in consequence, to be unattractive to the reader; while the American books devote most space and the best writing to the epidemiological, bacteriological, and immunological aspects of the public health. In both American and British publications the newer branches of hygiene, which aim rather at the promotion of health than the prevention of disease, are beginning to encroach upon the space formerly taken up by the discussion of those engineering problems which figured so prominently in the sanitary science of last century. The book under review follows the American pattern, giving first place, after a brief statement of the aims of hygiene, to the prevention of the communicable diseases and devoting several chapters to this subject. Other chapters deal with water, milk, foods, and air (written by Mr. H. M. Lancaster), diet, &c. (by Dr. Andrew Hunter), sanitation (by Mr. Peter Gillespie), maternal and child hygiene, school hygiene and clinics, vital statistics, public health organisation and public health education, while a chapter on industrial hygiene is contributed by Dr. J. G. Cunningham and Dr. R. M. Hutton. Illustrations throughout are derived mainly from the records and experiences of Canada or the United States, and the writers have drawn largely from American current public health literature. Reference is made, however, to most of the really important European work of recent years, with the exception of Prof. W. W. C. Topley's epidemiological studies. Some of the statistics quoted might have been more useful if they had been submitted to a process of digestion, but they will be of value to those who have no means of access to the actual government or state records from which they have been culled. This manual should prove valuable to Canadian students and practitioners of preventive medicine, and will find readers also in this country.

PREVENTIVE MEDICINE AND HYGIENE.

Fifth edition. By MILTON J. ROSENAU, Professor of Preventive Medicine and Hygiene, Harvard Medical School. London and New York: D. Appleton and Co. 1927. Pp. 1458. 42*s.*

SINCE the first edition appeared in 1913, this text-book has ranked, not only in America but also in this country, among the few standard works on public health. It has now undergone very careful revision in order to eliminate all that has been shown to be unsound as the result of the work of the past five years. Several hundred pages of the former edition have been omitted, and new subjects have been introduced, such as the psycho-analytic approach to sex hygiene, the prevention of cancer, the conservation of vision, periodic physical examinations, and so forth. Among the sections which have been largely re-written are those on scarlet fever, scurvy, rickets, and pellagra. This book differs from most English text-books in the

relatively meagre amount of space given to sanitation in contrast with that devoted to the prevention of communicable diseases. This feature will appeal to the modern health officer of all countries, although it must be remembered that the immigrant and unstabilised character of the American population is perhaps associated with greater epidemic menaces than the older civilisations have to meet. The established American views on such subjects as disinfection and vaccination are set out, and with these we find ourselves in complete agreement. Generally it may be said that Rosenau discards none of the hard-earned knowledge of the pioneers, but places it in proper perspective with the newer thought on sanitation and epidemiology. It is a pity that, probably as the result of hasty writing, this excellent book is marred by occasional lapses in literary style.

THE ÆTIOLOGY OF BERI-BERI.

Beiträge zur Geschichte der Erkennung der Beriberi als Avitaminose. Von Prof. Dr. G. GRIJNS, Landbouwhoogeschool Wageningen, Holland; Fortschritte der Naturwissenschaftlichen Forschung. Herausgegeben von Prof. Dr. EMIL ABDERHALDEN, Halle A.S. Neue Folge, Heft 1. Berlin and Vienna: Urban and Schwarzenberg. 1927. Pp. 32. Mk.3.

AN introduction by the editor, Dr. Emil Abderhalden, explains that this pamphlet recapitulates in German the early work of Prof. G. Grijns on beriberi and polyneuritis gallinarum, which had appeared for the most part in Dutch and in periodicals not easily accessible. The first few paragraphs are devoted to Dr. C. Eykman's well-known original observations, beginning in 1889, when he first noticed the spontaneous occurrence of polyneuritis among fowls living on polished rice. Grijns followed Eykman in 1896, and his researches from then on are summarised. He showed, for instance, that supplements of mineral salts had no beneficial influence in polyneuritis gallinarum; that the origin of the rice was indifferent; that freshly milled rice was as productive of the disease as that which had been milled a long time, and that additions of fat were not helpful. He found that *Phaseolus radiatus*, the katjang idjo bean, as an addition to the diet, was an excellent preventive against beri-beri. He marshals evidence and discusses the facts then known as to whether the disease is due to a toxin or a deficiency, and was himself already then inclined to favour the latter view. He brings the account of his work down to 1911, when the vitamins, both as a name and as a concept, were well established.

Prof. Grijns is well known to most students of beri-beri as the discoverer of the katjang idjo bean, the use of which has played so large a part in the fight against the disease in the East. He is also familiar as the maker of important contributions to the pioneer work on the disease; Casimir Funk speaks of him as "the first worker to express clearly a conception of beri-beri which holds good to this day." The value of his contribution is undoubted, but whether there was a demand for the republication of his work at the present time and in the present form it is less easy to say. Possibly owing to the neglect which the vitamins suffered in Central Europe, owing to the war, this new summary in German may fill a greater need than it would do here. It is certainly handy and well arranged.

JOURNALS.

THE QUARTERLY REVIEW OF BIOLOGY. Vol. II., No. 2, June, 1927. Baltimore: Williams and Wilkins Company. London agents: Baillière, Tindall and Cox. $5 per annum.—Prof. Raymond Pearl's review continues its useful career in helping to keep those who are not professional biologists from falling too far behind the rapid progress which is being made in various directions. This number opens with a long article on the innervation of muscle by Dr. M. Hines, which deals with the question of plurisegmental innervation, red and white muscle, muscle spindles, and—which will be of special interest to our readers—with the relation of the sympathetic to skeletal muscle and the work of Hunter and Royle; tone remains as mysterious as before.—The next essay is on animal life in hot springs, especially those in Yellowstone Park, by C. T. Brues. An account is given of the varied collection of live things which live in such places; elementary plants can live in water at more than 70° C., but the adaptation of higher invertebrate animals is much less—45° C. or thereabouts as a maximum.—Prof. A. Brachet, of Brussels, writes on the present state of knowledge of the germinal localisation of the factors for development in the egg, and Prof. L. V. Heilbrunn on the viscosity of protoplasm.—Prof. F. A. E. Crew continues his clear exposition of abnormalities of sex, and in this instalment considers the instances in which the sex, as determined by the chromosome equipment, is overridden by other factors, a matter on which the masculinising tumours of the adrenals might receive more attention.—Lastly, Dr. W. K. Gregory philosophises on the lateral aspect of the skull from fishes to man, and the number ends with 26 pages of useful book notices. Medical libraries swell to bursting nowadays, but this is a journal which they will do well to take.

Reports and Analytical Records.

AUSTIN'S ORANGE MARMALADE (SUGARLESS).

(MANUFACTURED BY J. E. AUSTIN AND CO., LTD., ST. JAMES' WORKS, CROMWELL-ROAD, KINGSTON-ON-THAMES.)

THIS product has the appearance, smell, and substantially the flavour of ordinary marmalade, and is distinctly sweet to the palate. When analysed the following results were obtained:—

Moisture	62·00 per cent.
Mineral matter	0·38 ,,
Matter insoluble in water	1·60 ,,
Sugar	1·90 ,,
Citric acid	0·54 ,,
Soluble extractives, including glycerol, pectinous matter, &c.	33·58 ,,

Gelatin and confectioner's glucose were absent and saccharin, formalin, benzoic, salicylic, and boric acids were tested for with negative results. The minute trace of sulphurous acid was less than is permitted by the recent regulations.

The sweetness is due to glycerol, and the statement of the manufacturers that the marmalade is free from added sugar and therefore suitable for diabetic patients is a correct one.

HINDES' BROWN HAIR TINT.

(PREPARED BY HINDES, LTD., 60, PARKER-STREET, KINGSWAY, LONDON.)

We have examined this well-known hair tint, the manufacturers having supplied us with the formula for our confidential consideration. We find that its composition is what it is stated to be. Hindes' brown hair tint contains no scheduled poison.

KIA-ORA LEMON SQUASH.

(KIA-ORA, LTD., BLACKFRIARS, LONDON, S.E. 1.)

This well-known lemon squash is prepared from lemons and sugar. For consumption as a beverage it is mixed with an appropriate amount of water or soda-water. On analysis the following results were obtained:—

Specific gravity	1·1695°
Sugar	33·1 per cent.
Citric acid	2·83 ,,
Glycerine	5·00 ,,
Ash	0·30 ,,
Water and lemon pulp	58·70 ,,

A small amount of sulphurous acid was found, which serves the purpose of a preservative. From the results it will be seen that "Kia-Ora" is a genuine lemon juice which has been sweetened by the addition of sugar and glycerine.

THE LANCET.

LONDON, SATURDAY, JULY 23, 1927.

THE ENCROACHMENT UPON INDIVIDUAL PRACTICE.

THE position of the general practitioner in the face of modern developments, alike in social legislation, in medical knowledge, and in technical equipment, has been seen for some time to present problems of growing perplexity. Similar problems have attended similar evolution before now, but to-day their complexity is such as to warrant apprehension. Some of the debates at the Representative Meeting of the British Medical Association, held in Edinburgh at the end of last week, revolved definitely round certain of these problems, while in the course of other debates it was clear that their existence was present in the minds of the speakers and was influencing their thoughts and their words. The fact that, save in the broad desire to do well by the public, there was no complete unanimity of medical opinion in these debates was not only what might be expected, but it is a proof both that the existence of grave difficulties is realised widely and that the need is felt for the earnest coöperation of all concerned if the conduct of medical practice is to maintain the spirit—the admirable spirit—of the past. It is now more patent than ever that the positions which arise in professional life are not only those which affect a fair adjustment of the interests of the public in relation to the interests of the medical profession as a whole. The medical profession, as a whole, cannot under the existing pattern of public affairs have more than one common concern—namely, that of promoting the health of the people, a concern which they share with the public. The scope of the all-round practitioner, of the specialist, and of those engaged in official or institutional positions cannot be subservient to identical practical desiderata, and it is the diverse nature of the claims of medical practice that is making so hard the arrival at definite decisions.

The general practitioners are those who really conduct the practice of medicine in the land, and the questions at issue concern not only the possible encroachment upon their natural duties by alterations in the law of the land, but concern also the encroachment conducted, with the best of motives, by State or municipal authorities, through the medium of medical officers or of various specialists, the latter of whom may be taken to represent the class of medical men which by equipment and opportunity is regarded as a leading one. It is imperative for the settlement of lines along which the medical practice of the country can proceed to the advantage both of the public and the medical profession that the sections of the latter, thus crudely set out, should not antagonise each other, but should realise that in overlapping territories of duty and responsibility joint efforts should be made for the public good. This should be the simpler because the sections of the medical profession are far more divided in appearance than in reality. For example, that large proportion of general practice which is represented by the work done under the National Insurance Act can itself be roughly classed as State practice, but its officers are definitely concerned with the individual care of patients, which they give in accordance alike with time-honoured methods and new knowledge. The quality of the service rendered is well standardised and has admittedly undergone marked improvement as the machinery for conducting general practice has been modified to bring the domiciliary care of the panel patient more closely into line with the traditions of private practice. That is all to the good, but it is also to the good that the practitioners of medicine along particular lines should form groups in order that their experiences may be collated and that definite plans of procedure should be evolved. Such men bring to the common task of maintaining and improving the health of the country the knowledge which can only be obtained and the talents which can only be kept bright by the intensive nature of their studies. But the more just their views of the good which they can accomplish the more clear will be their apprehension of the fact that the benefits which they can bestow will be vastly enhanced by close coöperation with those who have the charge of the general health of their patients. It follows that the specialists should regard themselves as consulting practitioners, anxious to take into consideration, when formulating any action, the opinions of the practitioners, and ready to explain to their colleagues the purposes in their minds. A similar fusing of knowledge and duty between practitioners and the officers of sanitary or lunacy services is possible, and it is especially when questions of early diagnosis arise that joint action is of public benefit. There is room under the natural expansion of the National Insurance Act for the linking up in this way of the sections of the profession, and the policy of the Ministry of Health should be directed broadly to those ends.

These are the considerations which should be clear to those who in the cause of the public propose to provide, by public or voluntary means, the facilities for medical treatment, and their significance should not be missed by commercial enterprises, if it is desired to work harmoniously with doctors. It is no sign of progress that the pattern on which individual medical practice has been conducted so splendidly and so long should be destroyed. A humorist has pointed out that those who career through the old villages of England in charabancs may soon desire to have the villages, which they purport to be visiting, removed, because the ancient byeways and projecting buildings impede the transit of the vast vehicles. If commercialisation of medicine should grow to the proportions of the charabanc industry, we may well ask if much that is beautiful and time-honoured in our conduct of practice is not threatened by the very machinery which is designed to make that practice more efficient.

VENEREAL DISEASE AND PROFESSIONAL SECRECY.

THE medical profession has not had long to wait for a fresh illustration of the difficulty and invidiousness of its members' position when they are brought into the witness-box to give evidence as to their treatment of patients suffering from venereal disease. At the Birmingham Assizes last week a medical practitioner from the Birmingham General Hospital was subpœnaed, on behalf of a wife petitioning for divorce, to give evidence concerning the treatment of her husband at the hospital in 1924. The witness naturally protested, and not merely on the grounds of professional tradition. He stated that he was not at the head of the hospital department concerned in 1924; a number of doctors were engaged in this work, and all had their own papers which were their personal property; he himself had no authority to produce other doctors' papers. Mr. Justice MCCARDIE, a judge who has often shown sympathy with the medical point of view, found himself obliged to say that the witness was entitled to no privilege, but must produce the documents and information. If he did not do so, every medical man and a number of officials from the hospitals would have to be called to the court, and ultimately the documents must be made available. If information were not given that should be given, and if documents were not produced which should be produced, the law, said the judge, would be enforced, and the doctor refusing to obey its order would be sent to prison. The hearing was adjourned until July 18th, in order that the doctors concerned might be subpœnaed. On resumption Mr. Justice MCCARDIE asked the learned counsel appearing for the petitioner whether he had considered the effect of the special obligation of medical secrecy in cases of venereal disease. Counsel argued that the Local Government Board's Regulations of 1916, which specifically direct non-disclosure, had no power to override the witness's duty to answer questions. This argument the judge accepted and upheld. His lordship said that the medical profession normally was under the duty of keeping inviolate the secret knowledge that its members may gain from treating a patient; indeed, they might become liable to a civil action for damages if without lawful excuse the duty of confidence was broken; but in a court of law the doctor had no privilege similar to that held by a solicitor or other legal adviser, and he was not privileged from compulsory disclosures of communications, however confidential. A further point arose, he continued, in the present case as to whether doctors were in a specially privileged position owing to the fact that they were acting in a department under the control of the Ministry of Health through the local health committee. In his view there was nothing in the regulations, nor in any regulations he had heard of, which saved a doctor from the obligation of disclosing —if ordered to do so by the court—all the information he might have of the facts he had gained while acting under the regulations.

In this unfortunate conflict of loyalties which has been thrust upon the medical profession two things are clear. In the first place a fresh situation has arisen in which the immemorial professional tradition of secrecy has to face a new challenge on a wide front. New arrangements, officially organised, have involved the treatment of venereal disease on an unprecedented scale. Simultaneously the law has made new demands for evidence. Recent years have witnessed a huge increase in divorce petitions, partly because of the social unsettlement of the war period, partly because divorce has been made easier for the wife, and partly (indeed mainly) because of the remarkable development of facilities for poor petitioners. To relieve the law-courts in London, matrimonial causes have been made triable locally at assizes with greater local publicity. In so far as this class of litigation gives occasion for medical evidence of venereal disease, the occasions have been lately multiplied. Meanwhile another change in the law has enabled a married woman to apply for a separation order on the ground that her husband has insisted upon marital relations while knowing himself to be suffering from venereal disease. Here is fresh occasion for inviting the doctor into the witness-box, and here it is not a case of the patient waiving his or her right to secrecy, but of a doctor giving evidence against the legal interests of the patient.

The second point which is clear is that the Ministry of Health cannot leave matters where they stand. Official utterances proclaim that it is peculiarly necessary to maintain strict professional confidence if venereal disease is to be combated; official regulations enact that secrecy is a legal obligation. All this is meaningless if judges can insist upon full disclosure. Hitherto many have thought it possible to compromise by way of protest on the part of the medical witness. But if protest is to be treated as a mere formality, if a hospital doctor is to be treated as though he were the secretary of a limited company and is to be compelled to produce confidential documents belonging to other practitioners merely because those documents are within the hospital walls, the public will soon learn to distrust the alleged secrecy which the Ministry of Health professes to ensure. Will the Ministry make it clear by regulation or, if necessary, by Act of Parliament that the promise of non-disclosure is genuine and inviolable? If not, it would be only fair to the patient to qualify the promise and to inform him, when he comes for treatment, that not only can secrecy not be ensured, but that—in the language used to the suspected criminal—anything he may say will be taken down and used in evidence against him.

GLAUCOMA.

OF the more serious problems of ophthalmology that await solution the problem of glaucoma is as important as any. Many conditions, of course will cause a pathological rise of intra-ocular tension and many factors are involved, but it is to primary glaucoma, acute and chronic, that most attention has been given. The ætiology and pathology of these states is being investigated in various directions. The physiology of the intra-ocular fluids, their relation to the vascular and nervous systems, and the biochemistry of the lens and vitreous under normal and abnormal conditions, have all to be put upon an unassailable basis before other factors can be considered. Anatomical states, normal and pathological, necessarily play their part, and much attention is being devoted to these also. More definite progress, however, is apparent along the lines of diagnosis, treatment, and prognosis. Tonometry, for instance, and careful methods for examining the whole visual field have greatly helped in early detection of the glaucomatous state, though, in any given case, it is still essential to collect all available clinical evidence; to depend on any one diagnostic factor is unsound.

Acute glaucoma is less of a surgical emergency than it was, for immediate medical treatment often improves the condition enough to allow operation under more favourable and quieter conditions. When this improvement cannot readily be brought about, the classical iridectomy is the operation of choice, and though done under difficulties it shows a very fair measure of success. Although research and experiment in the use of adrenalin and other non-surgical agents have had striking results, the limitations of medical treatment in all forms of glaucoma are being better realised. At the Oxford Ophthalmological Congress, of which we publish a report on p. 173, the varieties of operative treatment were carefully reviewed. The results, it was shown, were on the whole very satisfactory, though opinions differed about the soundest surgical methods of securing and maintaining satisfactory tension in the eye without excessive mutilation or undue risk of infection. The two that found most favour were permanent fistulisation of the angle of the anterior chamber beneath the conjunctiva, and deliberate and permanent subconjunctival inclusion of iris tissue in a scleral wound. Results of the latter method, chiefly from continental surgeons, were shown to be very good, and the case they made out seemed too complete for attack on the ground—so firmly held by ophthalmic surgeons—that any entanglement of the iris in a perforating ocular wound is a source of grave danger and anxiety. Prof. FELIX LAGRANGE, of Paris, very ably outlined the indications for, and requirements of, fistulisation of the eye, advocating the method he devised and originally described at Oxford many years ago. In his hands, and those of others, the operation has given excellent results. The British surgeons and Dr. W. H. WILMER, of Baltimore, who opened the main discussion, reported considerable success—in more than 80 per cent. of cases—with the Elliot trephine operation, which is probably easier to perform than Lagrange's anterior sclerectomy. The dangers of the thinly-covered trephine aperture, with the risk of late infection, were freely discussed, and Dr. WILMER described the method he has evolved of laying a graft of Tenon's capsule over the aperture so as to ensure a firmer covering beneath the conjunctiva.

The lesson of the discussion seemed to be that any of the well-recognised procedures will give a good result—especially in early and favourable cases of chronic glaucoma—provided it is carried out by a capable surgeon who is used to technique. If this is true, progress is unlikely except from further ætiological research, from sorting out the various types of the disease, and from learning their association with altered intra-ocular volume, gradual or precipitate, under normal or abnormal anatomical and physiological conditions. It is to be hoped that surgery will be needed less and less as time goes on, and that, where it is required, the special indications for particular forms of operation may be more clearly defined.

INDEX TO "THE LANCET," VOL. I., 1927.

THE Index and Title-page to Vol. I., 1927, which was completed with the issue of June 25th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

Annotations.

"Ne quid nimis."

RESEARCH ON ENZYMES.

IN all branches of human endeavour a few singularly gifted individuals have been able not merely to achieve epoch-making work themselves, but to provide a continuing source of inspiration to their followers. Such an individual was Michael Faraday, and his investigations on "the power of metals and other solids to induce the combination of gaseous bodies" served as a starting-point for research on those change-inducing and accelerating bodies which Berzelius in 1837 named catalysts. The functional similarity of inorganic catalysts, such as platinum, to those organised ferments of which yeast is a type led to much research in both classes. It was probably the dissimilarity which caused Kühne, in 1878, to give the name of enzyme to those catalysts which could be extracted from yeast and other organisms of the same kind. The simpler inorganic catalysts are characterised by the wide range of actions which they will accelerate, whereas the enzymes are highly specific in their action. In his Faraday lecture delivered before the Chemical Society on May 18th, Prof. R. Willstätter, whose work on chlorophyll and on the blue and red pigments of flowers is of outstanding merit, discussed problems and methods in enzyme research. The subject is not simple, and it is probable that few of the large audience carried away much more than a mental picture of a vast and almost uncharted ocean. The printed lecture in the June number of the Society's journal makes it possible to form a clearer notion of what is definitely known. Frankly, this does not seem to be very much, although there is no doubt that work is being done upon the right lines. We are beginning to know what enzymes are not. A. Fodor supposed the saccharase of yeast to be substantially identical with a carbohydrate yeast-gum, but now this enzyme has been wholly freed from yeast-gum without change of activity. E. Fischer and others deduced that the enzymes "are derived from proteins and possess a protein-like character." Lipase, peroxydase, saccharase, and other enzymes can be so purified that the protein-reactions disappear completely. Other facts lead to the conception of the enzymes as peculiar organic compounds, and suggest the problem of isolating them in a state of purity. The task of increasing their concentration involves the measurement at every stage of the activity of the product obtained. The gentlest means must be adopted, and of late years very selective adsorption on specially prepared surface-active substances has been used. This is a process adopted in 1842 by A. Vogel for the isolation of pepsin, and abandoned for a long time, but revived about 20 years ago by Michaelis and Ehrenreich. The behaviour of the adsorbed bodies changes as the enzyme becomes more concentrated; for example, after purification to a certain stage by fractional adsorption, pancreatic amylase, which may be adsorbed by alumina under certain conditions, is no longer adsorbed by alumina gels of excellent adsorptive power. "The adsorption of enzymes is determined by chemical peculiarities which cannot be predicted."

The actual quantities available are small. "Thus the enzyme from 14 kilos of fresh brewer's yeast was adsorbed by 1 gramme of aluminium oxide and the adsorbate weighed 2·5 grammes"—under 0·02 per cent. Vegetable peroxydase in early stages of preparation contained sugar groups and about 0·5 per cent. of iron, apparently characteristic constituents. When its purity was raised fivefold by adsorptive methods the carbohydrates had disappeared and the iron-content had fallen to 0·06 per cent. Then a new property—a reddish-brown colour—appeared. Added to these difficulties are many others. Thus

the optimum pH for an enzyme's action may vary according to its degree of purity. Lipase in the human stomach, unlike pancreatic lipase, has its optimum action at pH 5–6; and the same is true for the stomach of the dog. After purification human gastric lipase has its optimal activity in alkaline solution at pH 8. Willstätter says "the only property of the enzymes which is independent of the purity is, as far as we know, their qualitative specificity; their adaptation to a definite set of reactions determined by constitution and configuration." This is certainly a hopeful circumstance. A substance which under all vicissitudes retains its most characteristic property will almost certainly be isolated. The history of organic chemistry shows that this is only a preliminary stage to ascertaining its constitution and to its ultimate synthesis. Willstätter and his school may only succeed in adding to the equipment of investigators in this region, but it seems not unlikely that the patience and brilliant insight which made green leaves and flowers reveal their secrets will penetrate some of the mysteries of the organised ferments so closely associated with the life of man.

AURAL VERTIGO.

THE *Bristol Medico-Chirurgical Journal* (1927, xliv., 119) publishes an interesting little article by Mr. E. Watson-Williams, in which he distinguishes the classical, or rotatory, vertigo from the other less well-marked forms, which vary from a vague sense of impaired equilibrium to feelings that the patient or his surroundings are moving up and down. In true rotatory vertigo the sensation is that the sufferer, or his surroundings, or both, are turning round and round; the sensation of turning is concise and definite, and even years after a slight attack the patient's description is clear and vivid. The apparent rotation is nearly always in the transverse plane—that is, in the plane of the base of the skull. Mr. Watson-Williams makes the point, which is not new but is often overlooked, that vague feelings of vertigo may or may not be due to aural disease, whereas this definite rotatory vertigo in the absence of cerebral trouble is always due to it; the symptom may occur without tinnitus and even without deafness. He also makes a more novel point, that the nausea of vestibular origin is usually worse in the morning, and that patients suffering from it have therefore no appetite for breakfast, though they may eat their other meals heartily. Attacks of aural vertigo are so often ascribed by the patient to biliousness that it is well worth while to insist, with Mr. Watson-Williams, that this definite rotatory vertigo is always due to disturbance of the mechanism of the labyrinth.

BIOCHEMISTRY AND MEDICINE.

A LARGE proportion of the funds available for medical research are nowadays allotted to laboratory workers whose investigations are apparently remote from the problems of the bedside and consulting-room. This policy is justified by the history of medicine and is only dangerous when allowed to bring clinical work into disrepute. If to-day the trend of ancillary research is largely towards biochemistry that is because this science offers the largest uncultivated areas to the pioneer. The horizons are illimitable and the land is rich; all that is necessary is its exploitation. For centuries there have been extending settlements around the coast from which the old world of medicine has drawn new life, but until recently only a few individuals have devoted their lives to exploring the hinterland. Now at last these isolated journeys are being correlated and the country between them begins to appear upon our maps. Fortunately, there are more and more benefactors ready to finance the survey and development of this new territory in the interests of medicine, and an example of their wisdom is the Institute of Biochemistry opened on Wednesday last at the Middlesex Hospital. This admirable department will be directed by Prof. E. C. Dodds, who has himself brought back much that is valuable from his expeditions into unknown and difficult country. As he pointed out at the opening ceremony at the Institute (reported on p. 195), it is apparent that biochemistry "has already given us great and generally admitted benefits which are a tremendous encouragement to the pursuit of the study." The victories of the pioneers, he said, have already passed into the routine of medical practice; but while so much remains unknown the investigators—however many—are still pioneers. The new Institute will be an admirable starting-point for fresh endeavour.

CHARLES CREIGHTON.

WE regret to announce the death of Dr. Charles Creighton, the learned epidemiologist, which occurred on Sunday, July 17th, at Upper Boddington, where he had lived for some time in retirement. He was in his eightieth year, and will be but a memory to most students of medical history, while his industry and erudition, which will be commented upon in a future issue of THE LANCET won for him no commensurate position in the world.

BASAL METABOLISM IN THYROID DISEASE.

Dr. Eggert Moller, of the University of Copenhagen has recently published [1] investigations, by the Krogh method,[2] into the basal metabolism in thyroid disease. His results are interesting, but serve rather to prove the usefulness of this particular method than to throw any new light on the problems of basal metabolism in thyroid disease. The Krogh closed circuit apparatus seems to possess certain advantages for clinical work, the chief of which is its simplicity; several estimations can be made within an hour, and a graphic record provides an accurate control of the patient's respiration and enables the observer to read off the oxygen consumption directly from the curve. The results have been found to agree satisfactorily with those obtained by other methods. Opinion is almost unanimous at the present time that this test is the best guide to the state of activity of the thyroid gland, and though, like all laboratory tests, it has its limitations, it offers information which clinical observations by themselves could not supply. A large number of records of the basal metabolism in thyroid disease have now been made, both in America and Germany and in this country. Dr. Moller's findings agree closely with them. He again raises the question, however, whether the metabolism is always above normal in Graves's disease. A few years ago J. H. Means [3] called attention to a group of what he called borderline cases, in which the clinical signs of the condition were well marked though normal metabolic readings were obtained. Dr. Moller has found the same thing in his series of patients, and he too is of the opinion that a normal metabolism should not exclude a diagnosis of Graves's disease. It must be remembered that there are certain conditions in which the basal metabolism will give a frankly incorrect impression in diagnosis, unless the previous history of the case is accurately known. For instance, patients with myxœdema who have been receiving thyroid extract, or those with Graves's disease in a period of remission, may still retain many of the phenomena of the disease, and yet show a normal metabolism. These considerations show that any slavish adherence to the test as an index of diagnosis is inadvisable. The value of estimating the basal metabolism seems to lie especially in the differential diagnosis of doubtful cases and in following the effects of different methods of treatment. There is no doubt

[1] Acta Medica Scandinavica, 1927, Supplement xxi.
[2] Dansk Medicinsk. Selskab's Forhandl., 1921, p. 3.
[3] Arch. Int. Med., 1919, xxiv., 645.

that since the introduction of this test the usefulness of certain therapeutic measures has been placed on a surer footing. This is notably the case with the various forms of operation. When this kind of treatment was first undertaken, the largely subjective and impressionist reports about the results were unfavourably received by the profession. Nor did sceptics become convinced until estimations of the basal metabolism were employed to show numerically what had been accomplished. The same is true of the treatment of Graves's disease by radium or X rays, and more recently by iodine. The very definite advance made with iodine in the last few years can, in fact, be largely attributed to the introduction of methods which make it possible to follow accurately the course of the disease.

THE TEACHING OF TUBERCULOSIS.

THE differentiation of function in public health administration does not always make it easier to teach medicine to students. One by one diseases are being removed from the list of those which a general teaching hospital may treat in its wards, and are being relegated to the special hospital—often to State hospitals with no facilities for instruction. Tuberculosis is one of the latest and most conspicuous examples of this apparently inevitable trend of modern organisation. As the dispensary system develops, with its connecting links of sanatoriums and hospitals for surgical tuberculosis and advanced cases, fewer patients are treated at the general hospitals. It would be no exaggeration, indeed, to say that the newly qualified doctor has had little opportunity of studying the life-history of pulmonary tuberculosis, and although this disease is still one of the commonest causes of death in this country many men go out into general practice ill-equipped to coöperate in the comprehensive antituberculosis scheme which has been developed since the report of the Astor Committee.

Two recent handbooks for the student and practitioner form a useful contribution to this task of teaching the main outlines of pulmonary tuberculosis. The one, "Tuberculosis of the Lungs," [1] is a practical guide for general practitioners, written by Dr. H. Hyslop Thomson and Dr. A. P. Ford, who have charge of the tuberculosis scheme of Hertfordshire; the other, "Pulmonary Tuberculosis," [2] by Dr. G. T. Hebert, physician in charge of the Tuberculosis Department of St. Thomas's Hospital, comes from the experience of a teacher. The first is a condensed survey of the subject from historical summary to after-care and employment. It is orthodox and reasonable, and it omits nothing of vital importance, though it breaks no new ground. The practitioner is instructed in the administration of tuberculosis schemes and helped to visualise his own important position in them; chapters are devoted to diagnosis in general practice, domiciliary treatment, after-care and employment, prognosis—that most difficult of subjects—and the nursing of tuberculous patients, all of which are part of his daily life. The authors have managed to get a remarkable amount of information into the compass of a small handbook. It is a moot point, however, whether it might not have been better to let some of less important portions, such as the historical summary, go by the board, and to have given more space to subjects which harass the general practitioner—e.g., the care of the phthisic whom the sanatorium or hospital has sent home to die. Dr. Hebert's book is written from a different standpoint, that of the teacher who wishes to emphasise the main points in the clinical study of pulmonary tuberculosis. The examination of the patient, the study of his symptoms, the interpretation of the radiogram, and the description of special complications, such as hæmoptysis, pleurisy, and pneumothorax, all have the right emphasis laid upon them in the right place. Fibrosis of lungs, also, which so frequently confuses the beginner, is clearly described, whilst the chapter on physical signs contains tables and diagrams which we believe are quite new and original, and which should prove of great value to the student. One of the best chapters in the book is that on the evaluation of evidence. It would be difficult to exaggerate the importance of this subject, and Dr. Hebert's common-sense outlook, clear thinking, and experience have combined to make his treatment of it really brilliant.

Both these books, we believe, will find a place in the teaching of tuberculosis. They approach the subject from different angles, but they should help to focus attention on the real need which exists for the instruction of the student and the newly qualified graduate in an important subject.

[1] Tuberculosis of the Lungs. By H. Hyslop Thomson, M.D., D.P.H., and A. P. Ford, M.R.C.S., L.R.C.P., D.P.H. London: Baillière, Tindall and Cox. 1927. Pp. 179. 10*s.* 6*d.*

[2] Pulmonary Tuberculosis. By G. T. Hebert, M.A., M.D., M.R.C.P. London: Edward Arnold and Co. 1927. Pp. 212. 7*s.* 6*d.*

LIVING CYTOLOGY.

A BEAUTIFULLY illustrated paper by the late Dr. T. S. P. Strangeways and Dr. R. G. Canti appears in the last number of the *Quarterly Journal of Microscopical Science* (1927, lxxi., 1). It describes the appearances which can be made out by skilful dark-ground illumination of living cells in tissue-cultures and the changes which are produced by flooding the specimen with various fixatives while under observation. The descriptions and figures are worth careful study. In brief, it was found that no cell-wall, nuclear membrane, or Golgi apparatus was visible—which is not, of course, to say that they were not there—nor were spindle fibres seen in cells in mitosis. On the other hand, the nucleus, nucleoli, mitochondria, fat globules, cytoplasmic granules, and pigment rods were quite distinct, and a lively account is given of the writhing of the mitochondria. All the fixatives tried produced more or less precipitation of fine granules in nucleoplasm and cytoplasm; except osmic acid, they all caused shrinkage of the cell, especially chromic acid; several reagents had a curious effect in causing discrete globules of fat to run together; anything containing acetic acid distorted or destroyed the mitochondria and an appropriate fixative brought the mitotic spindle into sight at once. Generally speaking, the old idea that osmic acid produces least change is confirmed, and there is a remarkable note that light dissolves cells which have been fixed in chromic mixtures. Altogether the paper is a very valuable contribution to the rationale of cytological methods.

ROCKEFELLER PUBLICATIONS.

VOL. LIX. of the collected reprints which are issued from time to time as Studies from the Rockefeller Institute for Medical Research is a portly book of 660 pages containing 50 papers and an index. The quality of the different items is as high as usual; some, perhaps, are rather dull and many are tantalisingly incomplete owing to the prevalent habit of publishing a number of small papers rather than waiting till such progress has been made as will justify a solid account which must often (though not always) be rather bulky. But we have learned to be confident that Dr. Simon Flexner will not allow very much that is only "fair to middling" to emerge under the auspices of the Institute which he controls. The range of subjects dealt with is very wide, as necessarily follows from the policy of the organisation in securing good brains and letting them go where they will. Looking down the table of contents, we are struck again by the fact that very little of the research is directly medical. Indeed, in the present volume there is but one clinical contribution (on the effect of digitalis on auricular premature contractions) from the hospital attached to the Institute, and of the others one of Dr. Noguchi's papers on Oroya fever is the least remote from practical work. Our know-

ledge of the foundations of medicine is outstripping its clinical applications. The truth is that exact laboratory work is much simpler than ward work of anything like equal precision. The really inferior part of the volume is the organisation of its production; the classification in the list of contents is bizarre and the index is useless. In these days of mass production good indexes are worth care.

A second publication emanating from the Institute gives an account of its constitution, organisation, and equipment, and illustrates the means by which the Studies are produced. The scientific staff numbers 100. We have also received from another branch of Mr. Rockefeller's benefactions, the Rockefeller Foundation, the seventh number of the accounts, which appear from time to time under Dr. R. M. Pearce's direction, of the fabric and equipment of buildings used for medical education. It contains an interesting and well-illustrated account of the new school of medicine and dentistry which was opened at Rochester, New York, last autumn. The most noticeable feature is the inclusion of the departments of anatomy, physiology, and biochemistry, as well as those of pathology and bacteriology, in the same building as the hospital wards. Unity of purpose and work is without doubt best achieved in this way, and many schools have been slow to realise that a separation in space which seems trivial may mean an isolation of interest. The detailed accounts of the various departments will be very useful to those who are occupied with new buildings. A good many of the rooms pictured seem to be rather badly lit, and the workers who appear in the photographs look preternaturally earnest and strenuous.

ANAPHYLAXIS AND URTICARIA.

THE conception that the cutaneous reaction known as urticaria might be a manifestation of the anaphylactic state was advanced by Wolff-Eisner soon after the peculiar phenomenon of anaphylaxis was first observed in animals. The theory has received much support, and it is generally acknowledged that although there is a wide difference between the condition of an animal which has been reinjected after an interval of ten days with some foreign protein and a patient suffering from urticaria, yet there is a relationship between the two states. A case jointly reported by Pasteur Vallery-Radot, P. A. Carrié, P. Blamoutier, and M. Laudat,[1] seems considerably to strengthen this view.

The patient was a woman, aged 28; after undergoing moderate exertion for a few minutes she not only suffered from a profuse urticarial rash but also showed signs of dyspnœa, vertigo, profound cardiovascular disturbances, and collapse—her condition closely resembling that of an animal suffering from true anaphylaxis. A detailed examination of the blood and cardiovascular system revealed a further similarity, for the patient was found to have leucopenia, moderate eosinophilia, fall of blood pressure, and albuminuria shortly after each attack. From the description given it does not appear that for any considerable time after an attack the patient experienced the protection which is observed in animals for at least ten days after anaphylactic shock.

Urticaria following muscular effort has been previously recorded on more than one occasion, and with the knowledge that an animal—and probably man—cannot (with the exception of the lens) be sensitised by its own tissues, the phenomenon is difficult to explain. The possibility that histamine released from the tissues is the exciting cause must be considered, for this substance is known to produce urticaria, and also a condition closely allied to anaphylactic shock, when injected into animals or man. Dr. Vallery-Radot and his collaborators regard their patient as one of a group "atteint d'instabilité colloidoplasmatique," in which at times physical effort may produce urticaria, asthma, migraine, or even shock. The case is of still further interest inasmuch as a cure was apparently achieved by two injections of sodium thiosulphate. It was found that the alkaline reserve of the blood was subnormal, and in view of this deficiency sodium bicarbonate was administered by the mouth. This raised the alkali to within normal limits, but did not prevent the attacks. The same salt given intravenously did, however, partly relieve the patient. On the assumption that the relief was in reality due to the desensitising power of sodium bicarbonate, and not to its influence on the alkalinity, the neutral salt, thiosulphate of soda, which is known to have similar desensitising power, was given intravenously on two occasions. Each injection was followed an hour later by vomiting, headache, and tremors, a condition which reminded the authors of the nitritoid crises which sometimes follow the injection of the arsenobenzol compounds. The patient was duly rewarded, however, for although she had suffered from these distressing attacks for a year and a half they now ceased. Apparently the shock produced by the injections of this neutral salt in some manner modified the unstable or allergic state of this patient, thereby enabling her to resume her customary habits without further inconvenience.

[1] Presse Médicale, June 11th.

INTERNATIONAL OPHTHALMOLOGICAL CONGRESSES.

FOR two years an Anglo-American committee has been preparing the ground for a revival of the international ophthalmological congress held every four or five years before the war. The last step was to call a conference to frame the constitution, and the friendliness and unanimity which characterised last week's meeting at Scheveningen soon made it easy to achieve the common aim. The success of the conference (which we report in another column) must largely be attributed to the unbounded hospitality shown by the Dutch hosts. None of the delegates will readily forget the kindness of Prof. van der Hoeve and others who provided delightful opportunities for the delegates to meet one another, and no one who visited Scheveningen will voluntarily miss the congress to be held at Amsterdam in September, 1929. Meanwhile, ophthalmologists in all countries may well be grateful to those who worked hard to achieve these ends, and we note with especial pleasure the election of Mr. Treacher Collins as Hon. President of the International Council and of Mr. Leslie Paton as its treasurer.

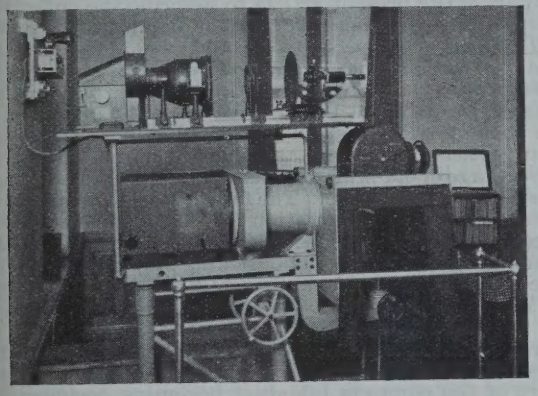
MEDICAL RESEARCH IN THE COLONIES.

A PROPOSAL for the establishment of a joint committee of the Colonial Office and the Medical Research Council was endorsed by the recent Colonial Office conference. The Secretary of State for the Colonies, in consultation with the Medical Research Council, has now appointed the Colonial Medical Research Committee with the following terms of reference: "To advise the Secretary of State and the Medical Research Council upon the initiation and promotion of medical research in the interests of the Colonial Empire; upon the recruitment and conditions of service of the necessary personnel; and upon the management and allocation of any funds available for these purposes." The Committee will also investigate proposals for the creation of a Colonial Medical Research Service and for the payment from a pool of grants to medical institutions which are considered to deserve the support of Colonial governments.

The Committee has been constituted as follows: The Right Hon. W. Ormsby-Gore, M.P. (chairman); Sir George Maxwell (deputy chairman); Members: The Secretary of the Medical Research Council, Sir Walter Fletcher; and the Chief Medical Adviser to the Secretary of State for the Colonies, Dr. A. T. Stanton, *ex officio*; Prof. J. W. W. Stephens; Sir Leonard Rogers; Dr. Andrew Balfour; Dr. Charles Todd; Dr. P. H. Manson-Bahr; and Dr. C. M. Wenyon.

THE NEW EPISCOPE AT THE ROYAL SOCIETY OF MEDICINE.

THE new Zeiss epidiascope—or episcope as it is called—which has been installed in the West Hall of the Royal Society of Medicine as part of a memorial to the late Sir John MacAlister, has a number of interesting features. Designed to project on the screen images of opaque objects, such as books, drawings, and flat specimens, as well as of objects in jars in a vertical position, it was found necessary to construct a revolving front to the apparatus. As this would, of course, give an inverted picture on the screen, when the plane mirror is in use, a special roof mirror was designed, both mirrors being housed together in a metal casing at the top of the revolving front. To change from one mirror to the other it is only necessary to move the small lever on the right of the apparatus. A 30-ampere arc lamp has been fitted with a specially worked



mirror, and to prevent any damage occurring to the specimens from the heat of the lamp a water-cooling chamber is interpolated between the lamp and the object stage. Mounted above the episcope is a table carrying two optical benches and a small 5-ampere arc lamp. This lamp is so constructed that it can be moved instantly from one bench to another. One optical bench is fitted with special condensing lenses provided with iris diaphragms, adjustable sole plate and microscope for the projection of microscopic objects; to obtain the desired size of picture on the screen a special eyepiece was designed. At the recent demonstration of the episcope to Fellows of the Society a picture of a microscopic object under a 1/12 inch oil-immersion objective was projected a distance of 32 feet, lighting and definition both being excellent—a great technical achievement. The second optical bench is fitted with large condensing and projection lenses, a double lantern slide carrier, and the other requisites for the projection of lantern slides of various sizes. The projection of large X ray plates is also carried out on this optical bench. The problem of projecting such large plates in a vertical position presented many difficulties, and was only solved after a long series of experiments. The instrument has been designed with interchangeable fittings, each having a little numbered celluloid disc inserted in the metal base, a corresponding disc being fitted to the optical bench showing the correct position. In scope and adaptability this episcope greatly exceeds anything hitherto used in this country; both the Society and Messrs. Carl Zeiss, of Jena, are to be congratulated on its installation.

RETIREMENT OF PROF. J. A. MACWILLIAM.—The Aberdeen University Court has received intimation from Prof. J. A. MacWilliam, M.D., F.R.S., that he is retiring from the Chair of the Institutes of Medicine (Physiology) in the University, which he has held for 41 years; a minute of the appreciation of Prof. MacWilliams's work has been passed by the University Court. The patronage of the chair is vested in the Crown.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXIII.—CHRONIC PANCREATITIS.

DURING the last few years the place taken by chronic pancreatitis as one of the common diseases of digestion has become more and more apparent, and its treatment has become a question of considerable importance. Chronic diseases of the pancreas may result in interference with the functions of the islands of Langerhans or with the alveoli. In the former case one of the types of diabetes may result, and in the latter the disturbance is mainly concerned with the external secretions of the organ. It is with this type of disease that the present article deals. Glycosuria is sometimes a transient sign in these cases, but it is seldom severe and only very rarely persists. There are two main types of chronic pancreatitis, catarrhal and chronic interstitial.

(1) *Catarrhal pancreatitis* is characterised by periodic attacks of nausea, vomiting, and diarrhœa, with bulky stools laden with undigested fat. The attack is nearly always heralded by a bout of shivering and a feeling of vague abdominal discomfort which may amount to definite epigastric pain, which is then generally associated with pain referred to the back beween the scapulæ. Catarrhal pancreatitis due to infection which may enter the main pancreatic duct from the common bile-duct or duodenum, or may be carried into the organ from the liver by lymphatic vessels.

(2) *Chronic interstitial pancreatitis* may be of three types, interlobular, interacinar, and a degenerate lipomatosis. The interlobular is the common variety, and the one principally associated with interference with the external secretion. The symptoms are less acute than with catarrhal pancreatitis. There is diminution rather than suppression of the external secretion; thus, diarrhœa and nausea are rare. On the other hand, there is marked interference with the digestion, particularly of fat and protein, and intestinal intoxication is pronounced. Flatulence is the prevailing symptom, but most of these patients suffer a good deal of pain in the form of an aching back. This form of pancreatitis is due to infection from the liver or gall-bladder, which is carried to the pancreas by the lymphatics.

Chronic pancreatitis always appears to be secondary to some other chronic inflammatory process in the abdomen. In the majority of cases this is a disease of the gall-bladder; sometimes the pylorus or duodenum are at fault, and occasionally the cause appears to be in the appendix. Wherever the primary focus, it must be remembered that the treatment of the pancreatitis can only be a part of the general treatment of the causative disease.

To remove the primary focus is an axiom of surgical treatment; here is a possible exception. No case of chronic pancreatitis is cured by cholecystectomy alone. Even after removal of the primary infecting focus, the diseased pancreas must be coaxed back to health by strict attention to diet, drainage, and drugs.

Diet.

This should be chosen with two main objects in view: (1) relieving the strain on pancreatic digestion; (2) limiting the amount of intestinal decomposition.

Carbohydrates.—The burden of carbohydrate digestion must, as far as possible, be thrown upon the saliva. Prolonged mastication of carbohydrate food is essential. Bread should be cut thin, toasted, and eaten cold. Potatoes and "milk puddings" should be avoided. Crisp carbohydrate breakfast foods having a maize basis are particularly to be recommended. They should be eaten in conjunction with, but not soaked in, fruit juice and a little cream. The cream inhibits the flow of gastric juice, and so prolongs the period of active ptyalin digestion within the stomach.

Fats.—Fat digestion is accomplished almost entirely through the medium of the lypolytic ferment contained in the pancreatic juice, assisted by the action of bile. The amount of fat in the diet must, therefore, be reduced to a minimum. Unsaponified fat clothes small particles of protein, and so renders them inaccessible to the action of digestive juices, and encourages putrefaction. Fat must be rigidly excluded from the protein meals. Pork, bacon, and all forms of fat meat are to be avoided. Duck, goose, and all water fowl are rich in fat, and must also be proscribed. Of the more common fish, salmon, eels, herrings (fresh or cured), red mullet, mackerel, and halibut contain

too much fat to allow of their being included in the diet. No fat must be used in cooking, so that fried food and all sorts of pastries are excluded. The only forms in which fat may be given are cream and butter. They must be used very sparingly, and given only with pure carbohydrate meals. Where there is jaundice or diarrhœa from catarrhal pancreatitis, fats are forbidden altogether.

Proteins.—The digestion of proteins is shared by pepsin, trypsin, and erepsin. The bulk of the work, however, is borne by the pancreatic secretion. Proteins should be given in a form, therefore, that will most easily be dealt with by the stomach and succus entericus. Meat may be taken sparingly once a day, and must be lightly cooked and preferably minced, so that the maximum amount of pepsin digestion may be obtained. Fish, except those mentioned under the paragraph on fats, may be substituted for meat in the single protein meal that is allowed each day. Eggs should not be taken. Raw egg is not digested at all by the stomach, and little by the succus entericus, so that, with the failure of pancreatic juice, they leave a large residue for bacterial decomposition, and, according to Dr. Langdon Brown, the relatively large amount of sulphur contained in them makes them more prone to putrefactive changes.

Fruits, green vegetables, and salads, except radishes, may be taken in moderation, but salad dressings containing fat and egg should be omitted, and cooked vegetables, particularly spinach, must be innocent of butter.

Beverages.—Milk, tea, beers and stout, and sparkling wines are to be avoided. Nothing should be drunk during meals except at dinner, when one glass of good, dry, white wine or a small whisky, which should not be "drowned," will aid the gastric digestion. No alcohol should be taken between meals.

Drainage.

Drainage in chronic pancreatitis is employed, first, to relieve congestion of the organ by evacuation of its mucus clogged ducts, and, secondly, in order to remove infected material from the neighbouring bile passages, and so to minimise the amount of reinfection of the pancreas. Drainage is obtained in two ways: by the use of the duodenal tube and by operation.

Drainage of the pancreatic ducts through the *duodenal tube* involves practice in the handling of the tube by the doctor, and considerable patience on the part of the subject. The method I use is that advocated by Lyon, with a rubber tube of about 2 mm. in diameter, with a wall sufficiently thick to resist atmospheric pressure, and having a perforated silver acorn, 1 cm. by 0·3 cm., at the distal extremity. I do not have markings on the tube, as I find that only by experience in the use of the method, or by the use of the X rays, can the exact position of the tube in the stomach or duodenum be determined.

After a fast of about 15 hours the patient is propped up in the sitting position, and the tube, lubricated with glycerine, is swallowed until the acorn is lying well within the gastric cavity. This is determined by the cessation of retching. The patient is allowed to remain in the sitting position for two or three minutes, and then is placed on the right side, with the foot of the bed slightly raised and the head resting on one pillow. By this manœuvre the weighted extremity of the tube is allowed to hang down in the stomach over the pylorus. A 20 c.cm. syringe is attached to the tube, and some of the stomach contents aspirated. They will be found to be copious in quantity and opalescent in appearance. The patient is told to swallow the tube about half inch at a time, with an interval of about a minute between each swallow. A little water in a feeding cup may be given to the patient to assist in swallowing; in the majority of cases this is unnecessary. With the progress of the tube through the stomach, repeated aspiration should be practised in order to determine the relative amount of gastric juice present. It is found that when the tube enters the pyloric vestibule the amount of gastric secretion obtained by aspiration is only 4 to 5 c.cm. at a time. Swallowing the tube must then proceed very slowly, or it is apt to become curled up in the stomach. When the acorn end of the tube first touches the pylorus there is always a reflex attack of retching. This may be very short, only one descent of the diaphragm being noted. A careful watch should be kept, or this will probably be missed. No further attempt should be made to swallow the tube until a final and much more emphatic heave demonstrates the passage through the pylorus; now gentle traction on the tube will indicate the fact that the distal part is gripped by the pylorus. Further traction on the tube will start retching by pressure of the acorn on the distal side of the pylorus. Aspiration generally is unsuccessful in producing any fluid, but occasionally a little thick glary mucus can be extracted from the duodenum. The tube is now slowly swallowed for about three inches, until its extremity becomes approximately over the ampulla of Vater.

The patient may now turn over and lie on the back in a more comfortable position; the head may be raised if desired. A solution of 25 per cent. magnesium sulphate is used in the majority of cases to stimulate the flow of bile and pancreatic juice. A solution of peptone is often more active than magnesium sulphate in stimulating a flow of pancreatic juice, but the latter has the advantage of being cheap and readily obtainable. After the injection of about 40 c.cm. of the solution into the duodenum, repeated aspirations with the 20 c.cm. syringe are made, the plunger is withdrawn and pushed back, so that no fluid is actually removed from the duodenum. From five to ten minutes elapse before a change is noted, and then the solution becomes tinged with yellow. The colour of the fluid will get gradually deeper as the proportion of bile to magnesium sulphate solution increases. During the next three-quarters of an hour the duodenal contents must be slowly removed by aspiration, and it may be found necessary to repeat the injection of magnesium sulphate into the duodenum two or three times. It is no part of the present article to describe the collection of specimens of pancreatic fluid for diagnostic purposes.

Drainage by operation should be done at the time of the primary operation for dealing with the infecting focus from which the chronic pancreatitis arises. In the great majority of cases the operation is for cholecystitis complicated by gall-stones. If chronic pancreatitis be present, as indeed it is in a very large percentage of old-standing cases, drainage of the biliary passages is imperative. The failure to relieve digestive symptoms by the operation of cholecystectomy for treatment of gall-stones is generally due—this is the essential point—to the overlooking of pancreatitis and the failure to provide and maintain adequate drainage.

Much may be said of the relative merits of drainage of the biliary system through the gall-bladder or through the common bile-duct. Where there is any possibility of the ampulla of Vater or the terminal part of the common bile-duct becoming occluded by pressure of a sclerosing pancreatitis or other cause, the gall-bladder must be preserved, as it may be necessary ultimately to resort to cholecystoduodenostomy; but where there is advanced inflammatory disease of the gall-bladder it is better to remove the viscus and drain the common bile-duct. Draining must be maintained for several weeks. Where pain is a prominent feature of chronic pancreatitis, relief may be obtained by incising the peritoneum on the antero-superior surface of the pancreas.

Drugs.

Drugs serve two purposes. They may disinfect the pancreatic ducts after being secreted by that organ, or they may be used to control intestinal putrefaction. Sodium salicylate and aspirin are the only pancreatic disinfectants that appear to be of much value. I am indebted to Dr. Victor Schektor, of Boulogne, for the following prescription. Take the juice of four lemons in a large jug. Add sodium salicylate 20 gr., and sodium bicarbonate 30 gr. When the effervescence has subsided, add one bottle of Vichy water. Stir well, and drink a glass full at a time, consuming the whole quantity in 24 hours.

For the control of intestinal putrefaction two drugs of particular merit are oil of cloves, which should be prescribed in a pill, and calomel taken in small doses.

For those whose means allow, a prolonged course of treatment at a spa is generally beneficial. Little benefit is derived in these cases from treatment by dried pancreas or pancreatic extract. In extreme cases food may be prepared partially digested with pancreatic extract, but it is very unpleasant to take.

The Outlook.

The treatment of chronic pancreatitis calls for a considerable exercise of patience both on the part of the doctor and the patient. But no case should be despaired of, and although in the more advanced stages of the disease cure seems to be unobtainable, yet very great relief of symptoms may be confidently expected.

H. E. GRIFFITHS, M.S. Lond., F.R.C.S. Eng.,
Surgeon, Albert Dock Hospital.

Special Articles.

EMANCIPATORS.*

BY HARVEY CUSHING, C.B., F.R.C.S.,
PROFESSOR OF SURGERY, HARVARD MEDICAL SCHOOL.

IT has been given to few so to identify themselves with great benefactions to human-kind that the bare mention of their names will for ever suggest equally the man and his legacy. We may celebrate the discovery of anæsthesia as a great boon, with disputed remembrance of those who made it possible; or we may remember a name like that of Pinel and recall, some of us but vaguely, what it was he did for humanity's sake.

Rarely is it safe to prophesy any durability of recognition, whatsoever the accomplishment. Fame that is contemporary, fame that for a time endures, and fame that actually accumulates differ in quality as differ the flash of a meteor, the glow of a comet, the permanence of a fixed star. Only when the contemplation of both the man and his achievement truly inspires and ennobles us will they remain indivisible, to be praised by the people for time everlasting.

On a May morning a few weeks ago, with the depth of emotion the spot engenders, I stood at the portal of the Lincoln Memorial in Washington looking upon that marvellous seated figure of the Emancipator there enshrined. And as I read again those familiar phrases spoken at Gettysburg, there came to mind how comparable were he and Lister in their service to the proposition that all men are created equal. Lister freed man from the shackles of sepsis; Lincoln a race from those of slavery. Yet how different the men, their medium of service, and the manner by which the seemingly inevitable was thrust upon them.

Who have made the greatest gifts to their fellow-man? Those who have left an idea that has supplied, like the utterances of Christ, what minds have yearned for? Those who have added to his physical comforts and have found ways to lessen hunger and want? Those who have added to his conveniences and devised means to lighten his labour? Those who have, like Lincoln, freed him from bondage, and, like Lister, released him from the horror of suppuration? One answer certainly can be made: that only when the gift requires great self-denial, and only if the giver be one that walketh uprightly and worketh righteousness and speaketh the truth in his heart, will he, like St. Francis, come to be canonised and for ever blessed.

Often when issues are critical, circumstances so combine as to bring the right man, at the right time, to the right place. But rarely is an individual so caught up in the vortex of a revolution in thought as unmistakably to be at its very centre. It is idle to speculate whether the opportunity more often makes the man, as was perhaps true of Lincoln; or the man the opportunity, as was more apparently the case with Lister. All that matters is that the conjunction should take place. The opportunity of doing something of lasting benefit to our kind doubtless lies before us all. Yet, even have we the imagination to realise it, we want the courage to grapple with it, the tenacity to hold it, the persuasiveness and unselfishness which can alone make converts and disciples.

Whereas circumstances pitchforked Lincoln into his position of responsibility, Lister, horrified at the condition in which he found surgery, deliberately elected to crusade against the most serious obstacle in the way of its advance. Were these men accidental or inevitable? Suppose they had been born into the world 50 years earlier or 50 years later, would they have been unknown and unnamed? Would their particular form of genius have found an outlet for its expression at any place and time? Or were they victims of circumstance, each in his different sphere, singled out by the finger of destiny for a significant rôle which some other might well enough have filled? Was it mere chance that the anti-slavery movement came to be focused on Lincoln? Did Lister happen to make himself the focal point of the movement to banish sepsis merely because Pasteur's studies of fermentation gave the clue, and because the science of bacteriology, already conceived by him, was about to be born to smooth his path?

What preparation had either of these two? An obscure, uncouth, backwoods lawyer, the very product of the soil, Lincoln was suddenly by God's will lifted to an eminence where, surrounded by hostility and innuendo, he must shoulder burdens and make decisions affecting the permanency not only of a nation but of the institution of slavery as well. In Lister's case, what preparation? An utterly different background, to be sure, yet also a sensitive man to whom strife was hateful, he too was drawn by God's will into a position where, faced by opposition and misrepresentation, he must make a fight for the truth. And why? Simply because he had set out, innocently enough, to answer questions. Why does the pupil contract? Why does the blood coagulate? and later: Why do wounds fester? To this well-hidden secret he found an answer in which others, to whom lives were entrusted, must be made to believe.

We may well doubt whether blind fortune could have lifted from the crowd any more practical, humane, and earnest men, equally far removed from motives of self-interest, who could have filled, as they did, their difficult and lonely places. What was to be done must be done largely single-handed, for when numbers are concerned in mighty decisions it is a matter of uncertainty whether they will add to the confidence or the discouragement of him who must lead at any cost. Faith they had, soon conviction, and ere long experience. "The only faith," it has been said, "that wears well and holds its colour in all weathers is that which is woven of conviction and set with the sharp mordant of experience." Both faced situations without precedent and arrived over untried ways through the process of reasoning and experiment—one that a nation's life might not be lost, in conducting a war of principle, for want of a moral hold on itself; the other that the lives of countless people, irrespective of nationality, might not be sacrificed because of scepticism and ridicule.

Exceedingly little was the encouragement received from their professional brethren. Belief in Lincoln rested with the common people; it was the students who gave testimony to Lister when others doubted. As one met a hostile neutrality abroad, so did the other at home. But the more they were tried, the stronger they became; for both had that sweet reasonableness of disposition which is not embittered by hostility, and each the honesty to admit whatever of truth there might be in adverse opinion. The cautious but steady advance of Lincoln's policy during the war and of Lister's experiments during his patient struggles to get at the truth left a well-paved road behind them along which anyone, not blind, could follow and be convinced.

Lincoln was spared much of what Lister endured. Had Lister possibly been the victim himself, as other surgeons have been, of an accidental wound infection after he had made his great demonstration, he too might have been enrolled as a martyr and have escaped the trials and humiliations to which he was long subjected. An awkward civilian during times of great military achievement, Lincoln has left behind him the memory of a grace higher than that of mere breeding, a fame beyond that of any conqueror. Lister was to the manner born; yet he also, so strong and persuasive is honest manliness, has left the memory of that nobility of soul which makes him kin to all mankind.

*An Address delivered at the Lister Centenary Celebration at Edinburgh on July 20th.

One for an ideal; the other for an idea. One by proclamation; the other by demonstration. To establish the ideal took countless lives. Because of the idea more lives are saved each year than were lost in that prolonged civil war. But it was Lincoln who at the time of trial put into words for a people what Lister for a profession might have said with little change—as a dedication for us the living to the great task remaining before us:—

With malice toward none, with charity for all, with firmness in the truth as God gives us to see the truth, let us strive on to finish the work we are in; to bind up the people's wounds, to care for him who shall have borne the battle, and for his widow, and his orphan—to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations.

The act on which Lincoln's life centres itself is not that for which an adoring nation has put a halo round his memory. Rather have a people, once divided, come to look upon him as expressing what they would wish to have represent them before the world. He thereby has become a symbol from which his countrymen reap a harvest of precious associations. So may our profession reap from Lister's life something far more precious than pride in his accomplishment and the satisfaction of claiming him as our own, that spiritual harvest which comes from the example of an unblemished character, for kindness, meekness, and comfort were in his tongue. Though lives die, the life is not dead; and the memory of lives such as these will be for ever shared, not by a profession alone, not by a nation alone, but by the whole brotherhood of men.

INTERNATIONAL OPHTHALMOLOGICAL CONGRESSES.

THE Convention of English-speaking Ophthalmologists, at a meeting held in London in 1925, asked its President, Mr. Treacher Collins, to nominate a small committee, whose function it would be to try to bring about a renewal of the periodical international ophthalmological congresses which, before the war, were held every fourth or fifth year. Mr. Collins nominated Dr. Edward Jackson (Denver), Dr. George de Schweinitz (Philadelphia), Sir John Parsons and Mr. Leslie Paton (London), as members of this committee, and himself acted as its convenor. The work of the committee during the last two years resulted in the calling of a conference at Scheveningen last week from July 12th–15th, which was attended by 48 delegates, representing 25 different nationalities. Of these delegates, one came from Chili, Dr. Thierry; two from the Argentine, Dr. Arganaraz and Dr. Demaria; two from Japan, Prof. Hata and Lieut.-Comdr. Tagawa; two from the United States, Dr. de Schweinitz and Dr. Parker; and two from Egypt, Dr. Meyerhoff and Dr. Riad. All the principal European nations except Russia, Turkey, and Greece were represented.

Much of the great success of the conference was due to the hospitality and forethought of the Dutch hosts, Prof. van der Hoeve (Leiden), Prof. Rochat (Groningen), President of the Netherlands Ophthalmological Society, and Dr. Marx (Leiden).

On Tuesday, July 12th, a preliminary meeting was held in the Orange Hotel, Scheveningen, at which Prof. Rochat welcomed the delegates equally eloquently in English, French, German, and Italian. Mr. Collins explained the circumstances which had led up to the summoning of the conference, and gave a short history of the previous international congresses. He then moved that Prof. van der Hoeve should take the chair. Mr. Leslie Paton (London), Dr. Marx (Leiden), and Dr. Pflüger (Berne) were nominated to act as secretaries of the conference. The principal motion—"that the International Congress of Ophthalmology be reconstituted"—was carried by acclamation, and committees were appointed to consider: (*a*) rules and by-laws; (*b*) the place and date of the first meeting of the new Congress, and the subjects for discussion; (*c*) finance; and (*d*) the questions of international ophthalmological importance that should be remitted to the Council for discussion.

On the evening of Tuesday the Anglo-American Convening Committee entertained the delegates to dinner at the Palace Hotel. On Wednesday the committees met in the morning, and in the afternoon members of the conference were the guests of Prof. van der Hoeve in an excursion by car and steamer to Leiden and the lake district in the neighbourhood. In the evening, Mr. and Mrs. van den Bergh gave a dinner and a garden party in their beautiful garden at Wassenaar near The Hague.

Decisions of the Congress.

On Thursday morning the reports of the committees were received. Invitations had been received from Denmark, Egypt, and Holland for the first Congress, and from Spain for the second Congress. It was unanimously decided that the first Congress should be held at Amsterdam in September, 1929. The new rules and by-laws were unanimously adopted by the conference.

The subscription was fixed at £2 sterling, or an equivalent sum, for Members, and £1 for Associates.

Apart from the expenses of the Congress itself, a fund would be required to meet the expenses of the International Council, to hold office in the period intervening between the Congresses. Already a certain amount of expense had been incurred in preparation for this conference. To meet these and other Council expenditure it was resolved to ask for voluntary subscriptions of not more than £5, or less than £2, from ophthalmological or other medical societies, or from individuals. Any society subscribing will be entitled to receive a copy of the Transactions of the Congress for its library. In this way it is hoped to secure a sum sufficient to meet the expenses of the Council other than those directly connected with the Congress.

The management and finances of the Congress itself will be controlled by a national committee, elected by the ophthalmologists of the country in which the Congress is to be held, and working in conjunction with the International Council.

The Council was asked to decide on the subjects for discussion, both at the Congress and by special committees to be appointed by the Council.

An International Council was appointed, to hold office until the Congress of 1929. It consisted of Prof. van der Hoeve (Netherlands), chairman; Prof. Lundsgaard (Denmark), vice-chairman; Mr. Leslie Paton (Great Britain), treasurer; Mr. Marx (Netherlands), secretary; Prof. Axenfeld (Germany); Dr. Byers (Canada); Prof. Coppez (Belgium); Prof. Marquez (Spain); Prof. Meller (Austria); Dr. Morax (France); Prof. Ovio (Italy); and Dr. de Schweinitz (United States). As the concluding act of the conference, Mr. E. Treacher Collins was elected Honorary President of the International Council by universal acclamation, as a tribute to the work he had done towards ensuring the success of the conference and the future of international ophthalmology.

After the end of the formal business of the Congress the delegates were taken by cars to Nordwyk-on-Sea, where they were entertained to lunch by Prof. van der Hoeve, whose health was proposed in eloquent Latin by Prof. Ask, backed up in English by Dr. de Schweinitz, in German by Geh. Prof. Axenfeld, in English by Prof. Arganaraz, in Italian by Prof. Ovio, and in French by Dr. Velez. After lunch the delegates visited the palatial new ophthalmic clinic at Leiden and looked with envy on the spacious rooms and accommodation provided there for ophthalmological work.

COVENTRY HOSPITAL.—Mr. W. R. Morris has given the cheque for £15,000 to the Coventry and Warwickshire Hospital which he promised on condition that the hospital carnival committee raised over £5000 by its efforts.

NEW WAR MEMORIAL HOSPITAL AT SELBY.—Viscount Lascelles has promised to open the new Memorial Hospital at Selby on Oct. 4th. Princess Mary laid the foundation-stone of the new building, which is costing £16,000, last autumn.

BRITISH MEDICAL ASSOCIATION.

REPRESENTATIVE MEETING, EDINBURGH.

THE annual Representative Meeting opened in the McEwan Hall, Edinburgh, on Friday, July 15th, under the chairmanship of Dr. H. B. BRACKENBURY. After some formal business, the Chairman recalled the fact that the patron of the Association, H.M. the King, was in residence at Holyrood and a message of humble and loyal greeting was sent.

Lieut.-Colonel F. O'Kinealy, I.M.S. (retd.), was appointed the representative of the I.M.S. on the Council for 1927–30; Dr. F. G. Thomson, immediate past-President, was elected a vice-President of the Association, and it was agreed that Sir Ewen Maclean be elected President for 1928–29. In thanking the meeting, Sir Ewen Maclean recalled the fact that the Representative Body had had its birth in Wales and said he believed he was the first President who had ever previously held the office of chairman of the Representative Body.

It was agreed that the annual meeting for 1929 should be held in Manchester and for 1930 in Winnipeg, Canada, and that a book of signatures should be instituted to form a permanent record of membership of the Representative Body.

In moving the adoption of the annual report (preliminary), Sir ROBERT BOLAM, chairman of Council, remarked that although the Association as a whole had been unable to take steps towards forming a Jenner Museum at Phipps Cottage, offered by Lork Berkeley for that purpose, nevertheless local members were taking action in the matter.

Locum Bureaux.

In 1925 the Representative Body instructed Council to form a bureau for the provision of locum tenents and assistants. Sir Robert Bolam reported that it was not practicable for the Association to run such a bureau, but an arrangement had been entered into with the Scholastic, Clerical, and Medical Association, Limited, whereby the British Medical Association held a half interest in the agency's shares and one half of the board of directors were to be members of the Association. Thus influence would be exercised to ensure that the work of the agency is conducted on lines consonant with the policy of the B.M.A. For the duration of this agreement the agency was to be allowed to use the title "British Medical Bureau." There would be slight advantages for B.M.A. members, but the agency would continue to be run on business lines.

A motion from Gateshead, protesting at this action of the Council without further reference to the Representative Body, was withdrawn after discussion.

Civic Welcome.

The Lord Provost of Edinburgh (Mr. ALEXANDER STEVENSON), with the President-Elect of the Association, Sir ROBERT PHILIP, then entered the hall. The Lord Provost, welcoming the meeting to his city, referred to the especial regard and pride which the municipality had always felt for its medical faculty and also to the coincidence of the Association's visit with the centenary of Lord Lister. Dr. BRACKENBURY briefly replied.

Sir ROBERT BOLAM announced that Mr. W. E. Hempson, solicitor to the Association for 27 years, had conveyed his resignation to the Council. He proposed that Mr. Hempson be elected an honorary member of the Association. This was carried amidst loud applause.

Finance and Organisation.

The Treasurer, Mr. BISHOP HARMAN, reported that there was an exceptionally good balance sheet and a large increase of membership, the year's surplus being twice what had been anticipated in their budget.

Dr. MORTON MACKENZIE, proposing the adoption of the annual report under "Organisation," outlined the proposed scheme for the formation of groups within the Association. It had been found, he said, that certain members engaged in special practice could not get their views and particular difficulties adequately expressed through the ordinary machinery of the Association. In such cases it was suggested that the Council should have power to form a group. The group meeting would appoint a committee of six which might meet twice a year at the head office and at other times by consent of the Chairman of Council; their expenses would be paid in the usual way. The findings of this committee would be placed before the appropriate standing committee. If the latter agreed with them it would incorporate them in its own recommendations to Council, but in any case the findings of the group committee must be placed before the Council, which might invite a representative of the group to attend its deliberations on the matter. The annual meeting of the group was to be held at the time and place of the annual meeting of the Association, in order that the members might realise that they were a part of the B.M.A.

The Harrogate division put forward two amendments which, after some discussion and verbal emendation, were accepted by the Chairman of the organisation committee. They read:

(1) That the Council be asked to consider that, subject to the approval of Council, the Executive Committee of the group should define the qualification for membership of the group, and (2) that the annual group meetings should be held, if the time of the B.M.A. annual meeting were found inconvenient, and with the approval of the Council, at such other time as the Executive Committee of the group may think desirable.

The formation of groups was opposed by Dr. J. MIDDLETON MARTIN, of Gloucester.

Dr. R. GORDON (Bath) said that the Association of Spa Practitioners had been opposed by several B.M.A. members, who had only consented to its formation when they found that the existing organisation could not meet their need and when they had been assured that the Council hoped soon to evolve a scheme whereby the group could be taken under the wing of the Association.

Mr. BISHOP HARMAN said that the existing machinery was not elastic enough; some years ago a number of ophthalmic surgeons had been obliged to band themselves, and pathologists had similar difficulties. The proposed expansion would not affect the fundamental constitution.

Sir ROBERT BOLAM assured the meeting that it need have no fears for the constitution of the Association, which was being carefully guarded.

The motion was carried.

Dr. MORTON MACKENZIE then reported that there had been an increase of 1800 in the membership during the year past, including 700 new members from overseas, whence came most encouraging reports. The South African organisation was now established and working well; all that the members there had wanted had been achieved. There were now 50 overseas branches. At home the principal activity had been in the direction of increased local scientific work. The lecture on Cancer by Sir Berkeley Moynihan in the spring had convinced them that the occasional provision of such a lecture, after careful preparation and with a kind press, was a valuable factor in convincing the public that the Association had the public health at heart. Excellent recruiting work had been done among the newly qualified, especially in Glasgow, where 90–95 per cent. often joined up; last May 100 per cent. of those qualifying became members.

Dr. J. B. MILLER brought forward a proposal by Lanarkshire:

That the Council be instructed to consider the taking of such steps as are necessary to secure that members attending meetings of Council and Central Committees be paid reasonable out-of-pocket expenses in addition to railway fares.

He pointed out that although there had not been, and probably would not be, any difficulty in obtaining

the services of the best people to do the work of the Association, yet many of them gave those services at considerable personal loss. Members who travelled backwards and forwards daily were allowed double or triple fare, but it would be much better for them to spend that allowance on a quiet bed in town. He suggested a scale similar to that allowed for civil servants absent from their homes on duty.

Dr. PETER MACDONALD (York) supported the motion, saying that the time had come to consider this matter very earnestly. Those who did the work of the Association had to be selected on the worst basis of all—a pecuniary one—and the best man was sometimes excluded. The matter would be costly, but he wished the treasurer would give up trying to think as a Scot, as the efficiency of the work would be greatly enhanced.

Mr. BISHOP HARMAN opposed the motion on the ground that it would be only logical to include the whole Representative Body, which would mean an increase of nearly 100 per cent. on the present cost of meetings. The finances would not bear this. In the past, local efforts had met such financial difficulties as had arisen. He deprecated the tendency to require equivalents for work done and gloried in voluntary work.

Dr. MILLER contrasted attendance at the Representative Meeting, in fine weather and pleasant surroundings, with journeying to London in a November fog to serve on a central committee. His motion was carried.

New Buildings.

After lunch the meeting was resumed in the anatomical theatre, where Sir ROBERT BOLAM (chairman of the building committee) gave a lantern demonstration of proposed extensions to the present house in Tavistock-square. The Association, he said, was already bound to take over the houses adjacent to its strip of private road, an area of 11,240 square feet, at a cost of £12,000. It now had the opportunity to acquire further blocks on either side of these, the northern one falling in in 1934 at a cost of £90,000 and the southern in 1938 at a price of £100,000. By securing the long lease of these two additional blocks the Association could erect a magnificient building, completed about 1940, at a total cost of £310,000. The finances of the Association would enable this to be done without great difficulty and without interfering with the present activities and reasonable expansion of other work. Nor would there be any need for borrowing, for their credit was good enough to cover the whole expenditure if necessary. He spoke eloquently of the importance of taking the long view in this matter, of the asset which would be left to the profession by the generation which undertook such an outlay and of the power of money, power of position, and enhanced prestige at home and abroad that such a home would assure. He was supported by the treasurer, the solicitor, the three oldest members present, and by a number of other speakers. All paid enthusiastic tribute to Sir Robert Bolam's capability, courage, and statesmanship in conceiving the scheme, carrying it through against much preliminary opposition and presenting it so lucidly to the meeting. After two or three questions had been asked and answered the report of Council under "Building" was carried unanimously and with applause.

The British Medical Journal.

Dr. J. A. MACDONALD, proposing the adoption of the annual report of Council under "Journal," reviewed the work and progress of the *British Medical Journal*. There had been a steady increase in circulation and in income from advertisements. The Association had also published the *Archives of Disease in Childhood* and the *Journal of Neurology and Psychopathology*.

Dr. L. A. PARRY moved, on behalf of Brighton:

That, whilst recognising the responsibility for all that appears in the *British Medical Journal*, and its supplement, as defined in Article 38 of the Association, the Representative Body is of opinion that those periodicals should be open to communications from any members commenting, favourably or otherwise, either on the policy of the Association in regard to the medical and allied sciences or on a communication inserted by a department of the Association.

He related a personal experience in this connexion and protested against the restriction of free discussion on controversial subjects.

Dr. C. O. HAWTHORNE said that the principle involved was the position of the Editor. No capable man could accept a situation in which he might be called upon to receive 30,000 letters, on any subject, each of them having the right to appear within the columns of his journal. The Brighton motion took away from the Editor his responsibility for what appeared in the journal and left him only the question: Is this a communication from one of my 30,000 masters and necessarily, therefore, to be inserted? There was no halfway house between trusting an editor and dismissing him.

Dr. J. A. MACDONALD said that it was not correct to say that a member might not use the columns of the journal to criticise one of the committees. In this case it was the action of the Council, which had given instructions for a strong propaganda movement, which the letter would have weakened.

Sir ROBERT BOLAM said that the only mistake the Editor had made was in attempting to give a reason for refusing Dr. Parry's letter. Dr. Parry would see that it was impossible to conduct a scientific journal on the lines laid down in his resolution.

The motion was lost.

A motion by Plymouth, asking that local meetings should be reported more fully and conspicuously, was lost.

Edinburgh and Leith brought forward two motions for the improvement of the journal. The first, asking that the proceedings of the annual meeting should be printed in one volume, was opposed by the Chairman of the committee on the grounds of impracticability and was lost. The second, requesting the Council to consider the possibility of improving illustrations was answered by Dr. Macdonald in a careful statement of the technicalities and cost of reproducing pictures and was withdrawn.

Medical Ethics.

In proposing the adoption of the report of Council under "Ethics," Dr. LYNDON brought forward the recommendation—

That the Representative Body considers it undesirable that there should be inserted in the medical press or in other publications primarily intended for the medical profession any advertisement of a therapeutic institution which includes any laudatory statement of the form of treatment given or the private address or the consulting-rooms or hours of a member of the medical staff; but that there is no objection to the name and qualifications of medical officers of the institution being given.

He reminded the meeting that in 1924 the Representative Body had decided that the advertisements of institutions professing to provide medical advice and treatment, together with the name of the resident and visiting medical officers, were unobjectionable. It had since been found that some of these advertisements were open to objection in that they contained laudatory statements of the treatment offered and the private addresses and consulting hours of medical officers.

Dr. F. RADCLIFFE (Oldham) drew attention to the effects of this resolution on institutions such as the Cheadle Royal Asylum, which published an advertisement giving the hours and place at which patients or relatives might consult the medical officer in Manchester. Questions elicited the fact that in the case the doctor was not seeing private patients for his own gain. There was some discussion, in which Mr. McAdam Eccles and Dr. R. Langdon Down took part. There was general agreement that advertisements in which the particulars were inserted for the doctor's private gain were undesirable, the difficulty, as Sir Robert Bolam pointed out, being to adjudicate in any instance. Finally it was agreed on the motion of Dr. F. Radcliffe and Dr. J. D'Ewart

(Manchester) to amend the resolution by substituting the words :

"or the address, or the consulting-rooms, or the hours of a member of the medical staff at which he sees private patients" for the words "or the private address or the consulting-rooms or hours of a member of the medical staff."

Dr. S. P. KAPADIA (Bombay) made an eloquent appeal to the meeting to stiffen the standard of medical ethics by refusing to allow any reference to the medical officer at all. His amendment was seconded by Dr. D. ROXBURGH (Marylebone), but was not carried.

Dr. LYNDON, moving the remainder of the report, remarked that it had not been found desirable to draw up an ethical code, other than that laid down in the "Handbook for the Newly Qualified." Nor did the Council consider necessary any further extension of the existing machinery for dealing with professional disputes.

Dr. C. H. MILBURN (Harrogate) deplored the number and character of signed contributions from medical men in the press and thought the best way of dealing with abuses was to educate the younger members. He proposed on behalf of his division, and carried, a resolution :

That the Council be instructed to consider any further steps which may be thought necessary for the instruction of senior students or newly qualified practitioners in medical ethics.

The proposal was supported by Dr. J. F. WALKER (Southend).—Sir ROBERT BOLAM and Dr. LYNDEN reminded the meeting that much was already being done in the medical schools, both by example and by precept. The General Medical Council had satisfied itself that the attention of authorities had been drawn to the need for such instruction and had advised the teaching bodies in 1922 that students should be grounded in the subject.

SATURDAY, JULY 16TH.

In the absence of the chairman, owing to indisposition, the chair was taken by the deputy chairman, Dr. C. O. HAWTHORNE. While he, as chairman of the Science Committee, was dealing with that portion of the annual report, Dr. WALLACE HENRY, immediate past-chairman, presided.

Pathological Institutes and Reports.

Dr. HAWTHORNE said that as a result of complaints from members in private practice as pathologists that they were being unfairly treated, the Council had carefully considered the position of advertisements of pathological institutes and of commercial and public health laboratories. The Council had adopted the following general propositions :

(*a*) That in the interests of medicine and of medical practice the status and professional values of the private practitioner of pathology should be more generally recognised ;

(*b*) That the practice of clinical pathology should be conducted in accordance with the professional customs and ethical principles that govern other specialised departments of medical practice ;

(*c*) That so far as possible, and this especially in difficult and obscure cases, the pathologist and the practitioner in charge of the patient should meet in consultation ;

(*d*) That a practitioner engaged in private practice as a pathologist is at liberty to notify the fact, together with his professional address, to medical practitioners within the area of his practice ;

(*e*) That in no circumstances should a pathological report be furnished to any person other than a qualified medical practitioner.

Later on in the meeting Dr. PARRY moved, for Brighton, an amendment, accepted by the chairman of the Science Committee, to insert words making it clear that dental practitioners are included throughout. It had been decided, said Dr. Hawthorne, that the Association should discourage, or at least abstain, from encouraging laboratories governed by purely commercial and advertising ambitions, partly because of the unfair competition they set up with the private pathologist who could not and had no wish to advertise, and partly because there seemed no logical end to the departments which might be set up as side lines to a commercial firm. If such firms ran clinical laboratories and gave reports on pathological material, why should they not run X ray departments, or, indeed, why not provide a consulting surgeon or physician to furnish clinical reports ? The Council was convinced that the status and professional values of the private practitioner of pathology should be more generally recognised. Their attitude was expressed in four recommendations, some of which aroused considerable interest and discussion. The first was :

That the Representative Body disapproves of the establishment by trading firms of laboratories as subsidiary enterprises for the purpose of offering pathological examinations and reports on individual cases, and advises members of the Association to avoid any association with such enterprises.

This was carried unanimously. The second was :

That in the opinion of the Representative Body all institutions undertaking pathological examinations and reports should include in any intimation made to the profession the name of the registered medical practitioner in charge of the laboratory, and that each report issued from the laboratory should be guaranteed by the personal signature in writing either of this practitioner or of some other registered medical practitioner approved by him.

This, Dr. Hawthorne explained, was to put a stop to the "communal guarantee" of institutions and to insist on the personal responsibility of the individual reporting on a specimen. It was carried.

The third recommendation stated :

That in the opinion of the Representative Body public health authorities should neither provide for pathological examinations nor furnish pathological reports on individual cases, except (i) in cases which directly involve questions of public health, or (ii) where provision is made for such reports by statutory right, or (iii) when the patient is stated by the practitioner to be, in his opinion, unable to pay a fee.

Dr. L. A. PARRY, proposed but failed to carry an amendment by Brighton to delete the third paragraph of this resolution ; he said that once it was admitted that public authorities should investigate pathological conditions they came into competition with private pathologists. There was ample provision for poorer patients.

Dr. HAWTHORNE objected that time might be an essential element in an examination, and said it was a mistake to be too scrupulous about the methods by which the required information was obtained in such cases.

Dr. C. E. S. FLEMMING (Salisbury) said that the resolution would involve the setting up of another laboratory for each area where there was only a public health laboratory in existence. This duplication would imperil the work. In neither of the two small institutions would there be such good equipment or such wide and varied experience as in the one big one, and work would be taken away from private pathologists.

Dr. G. CLARK TROTTER (City) strongly supported the motion. He pointed out that it was not incumbent on the public health authority to do these examinations. It was for the medical officer of health to decide whether they were in the interests of the public health or not. Indiscriminate swabbing of throats might be performed as a placebo, or among contacts from whom nothing could be learned. Often it was more valuable to do a pathogenicity test on throat swabbings than a culture.

Dr. H. S. BEADLES (Romford) looked forward to the day when the pathological laboratory would be open to all cases ; at present the work in public health institutions was limited to diphtheria, syphilis, typhoid, and tuberculosis, although some of them would do other investigations at a fee which was considerably lower than that of the private pathologist. He knew of only one laboratory where it was possible legitimately to get investigations made for panel patients ; this was in a town where the work was done municipally for everybody.

Dr. J. STEVENS (Edinburgh) protested at Dr. Clark Trotter's claim to decide without seeing a case whether the investigation required by the doctor in charge were necessary or not.

Dr. S. C. DYKE (S. Staffs) urged the absolute necessity of bringing the pathologist into closer touch with the patient. The public health laboratory and the laboratory attached to a voluntary hospital were two different matters; in one case bulk was an important factor, in the other the primary consideration was the individual specimen in relation to the individual patient. In all districts there was an opening for laboratories of both kinds. Most private pathologists were attached to hospitals which could not pay the fees of a whole-time man.

Dr. E. W. G. MASTERMAN (Camberwell) described the peculiar arrangement in his borough where the proposed policy was being carried out at the present time. There was a large Poor-law hospital with a pathological laboratory where all the work of the hospital was done, which was also the municipal laboratory. The pathologist had his own laboratory and assistants where he did private work. The arrangement worked admirably. The voluntary hospitals in the district could not possibly undertake the work done at this institution, and it was not correct to say that this kind of work could only be done at a voluntary hospital.

Mr. H. S. SOUTTAR (Marylebone) said that there was a dilemma here. The general practitioner required pathological reports at the earliest possible moment, and expressed in the clearest possible manner the private pathologist was trying to make a living and the hospital pathologist wanted the maximum possible experience. He suggested amending the resolution by inserting the words "where other pathological facilities are available" after the first clause.—Mr. MCADAM ECCLES seconded this and it was carried after a discussion.—Sir ROBERT BOLAM pointed out that conditions varied greatly in different areas and the prescribed procedure must be kept very elastic.—Dr. HAWTHORNE said that the burden of deciding where other facilities were available would be too great for the Council to bear.

Dr. R. A. LYSTER (Hants) urged that the motion be referred back to Council on the ground that Mr. Souttar's amendment had produced an impossible situation—viz., interference with the responsibilities of local authorities. The motion as amended would hold the Association up to ridicule. Pathologists at present were not a well-established branch of the profession; their future, in his opinion, lay very largely in the development of public health facilities by the local authorities. From these the practitioner also benefited and there was a general tendency now to extend them. Fullest advantage was taken of them and they were much appreciated where they were available. They provided employment for pathologists; the terms of employment were essentially a matter for the B.M.A. The patients benefited by the scale of fees suited to their means. The effect of this motion, if it could be carried out, would be to deprive a large number of patients of pathological help. Thus the three classes of people involved, pathologist, practitioner, and patient, all stood to lose by the resolution. These services, whether for poor or rich, must be developed as one service. The development of a public service for poor people in many directions had produced bad muddles.

Dr. C. E. DOUGLAS (Fife) seconded the proposal to refer back. He said that in Scotland the local authorities always dealt with the examination of specimens sent by practitioners.

Dr. DYKE said that there was a fourth consideration besides those of pathologist, doctor, and patient, and that was the advancement of medicine. This demanded the closest contact between patient and pathologist, which was best served by placing the pathological work concerned with the individual patient in the laboratories of the hospital. He did not agree that the future of the pathologist lay with the public health authorities; it lay in the laboratory of voluntary hospitals. He supported the amendment.

Dr. HAWTHORNE accepted the reference back, which was carried.

He then proposed the fourth recommendation of Council:

That where a pathologist attached to a hospital or medical school undertaking pathological work as a general service does such work for persons able to pay fees, the fees paid for such examinations (subject to such charge for the use of the laboratory as may be arranged) should be the property of the pathologist and should be a matter of private arrangement between the pathologist and the person for whom the examinations are made.

Whereupon an amendment to refer this also back to Council was put forward by Dr. J. HUDSON (Newcastle), who said the proposed arrangement was impossible. This was seconded by Dr. J. STEVENS (Edinburgh) and supported by Dr. F. RADCLIFFE (Oldham), who said that it would put the pathologists in an extremely awkward position. They were whole-time officers of a governing body and they were expected to ask this body to accept a fee for permission to use the laboratory as a private one for part of the time. The day would come when the governing body would observe that their officer was giving much of his time to private work and would consider either his dismissal or the reduction of his salary.

Dr. P. MACDONALD (York) said that the scheme could quite well be carried out, and was being carried out in his own district.

Dr. R. BROCKMAN (Sheffield) quoted another instance where the scheme was working well; the safeguard in this case was that private practice was permitted provided that the staff of the infirmary were satisfied that the work of that institution was being efficiently carried out.

Dr. H. BEADLES (Romford) said that the scheme could not be worked in very large areas, but Dr. HAWTHORNE replied that this type of appointment was not that under consideration in the recommendation.

The amendment was not carried and the original recommendation was passed by the requisite three-fourths majority.

Some discussion arose on an amendment by Brighton to the last clause of the general propositions (vide supra). Dr. PARRY wished to add the words "except at the request of the practitioner" to the phrase stating that reports should only be furnished to a doctor. In places with a moving population like Brighton the requested report might not be ready before the patient left. Mr. BISHOP HARMAN strongly opposed this proposal, pointing out that it was simple for the doctor to forward on the report; the practitioner who had asked for it wanted to see it and he might not want the patient to. The amendment was rejected.

Dr. R. FORBES (Gateshead) thought that all advertisements of commercial pathological institutes should be excluded from the journal and brought forward an amendment to that effect. He mentioned the "transition" type of laboratory, run often by a group of practitioners as a limited liability company. These cut out the private pathologist by charging lower fees, and Gateshead thought it would be better and more consistent with the attitude of the Council towards these institutions if they were not allowed to advertise.

Dr. H. WOODROFFE (Norwich) supported this; he thought that the private pathologist was being left in competition with mass production. If these concerns were to advertise, the private pathologist should be able to also, and that would open the door to advertisements from any branch of the profession.

Dr. HAWTHORNE said that the proposal was ideal, but not practical at present. Many of the institutes had done good service to the profession by providing facilities unobtainable elsewhere. Sir ROBERT BOLAM appealed to Gateshead to leave the matter in the hands of the Council without summary direction, and the amendment was rejected.

Research Work of the Association.

In moving the remainder of the annual report under "Science," Dr. HAWTHORNE referred to the scholarships and grants, especially mentioning a grant to the Paddington Green Hospital special scheme of investigation into child rheumatism. The Stewart Prize, he said, had been awarded to Sir Malcolm Watson in recognition of his work in freeing large tracts of tropical Malaya from malaria, and the Sir Charles Hastings Clinical Prize for a general practitioner to Dr. J. S. Manson, of Warrington, for an essay entitled "Observations on Human Heredity."

In moving the adoption of the supplementary report under "Science," Dr. HAWTHORNE brought forward the motion:

That the Representative Body approve the Council's proposals for the carrying out by the Association of the scheme submitted for collective investigation by individual medical practitioners.

This refers to a proposed collective investigation on varicose ulceration and the after history of gastro-enterostomy. The inquiry is to be conducted, through the divisional machinery of the Association, in the early autumn.

Dr. DOUGLAS pointed out that it was no new thing for the Association to bring together the collective experience of its members; it had been done in the 'sixties. Work on pneumonia and the communicability of phthisis collated in the 'eighties had by now become part of our general knowledge.

Dr. C. E. S. FLEMMING congratulated the Council on the scheme and asked what was to be done with the returns received. He suggested that they should be discussed at branch meetings and at the sections of the annual meeting.

Dr. HAWTHORNE replied that Dr. A. P. Luff, consulting physician to St. Mary's Hospital, had consented to give his services in collating the material. The Ministry of Health had also promised the help of one or more experts in formulating questions and analysing answers.

Municipal Maternity Hospitals.

Proposing the adoption of the report under "Medico-Political," the chairman of that committee, Dr. J. W. BONE (Luton), brought forward the motion:

That inasmuch as the liability of local authorities for the payment of a medical practitioner called in on the advice of a midwife extends over a period of four weeks from the birth of the child, it is not desirable to suggest that the period of responsibility of local authorities should be extended.

This was agreed to, and Dr. FORBES, on behalf of Gateshead, then proposed to amend a resolution passed last year—viz.:

That where a general practitioner is called upon to render assistance at a confinement in a municipal maternity hospital, the fees payable to such practitioner should not be less than the scale of fees approved by the Ministry of Health for the payment by local supervising authorities to medical practitioners called in on the advice of midwives, under Section 14 of the Midwives Act, 1918,

by inserting after the words "a confinement" the words "or for any condition arising directly out of parturition."

Dr. BONE accepted this and proposed the further recommendation of Council:

That the principle of remuneration on a salaried basis for consultative services to municipal maternity hospitals is not unreasonable, but that the actual salary must be governed by the circumstances of each particular case—i.e., the amount of work required and the time occupied—and should bear some relation to the remuneration laid down in the following Minute 95 of the annual representative meeting, 1926. Resolved: That where a consultant is called in by the practitioner in charge of the case the fee should be for the consultation not less than three guineas and for a major operation not less than ten guineas.

This was accepted.

Administration of Anæsthetics by Dentists and N.H.I. Patients.

Dr. BONE reminded the meeting that the Representative Body in 1910, in approving the evidence given on behalf of the Association before the Departmental Committee on Coroners Law, &c., approved inter alia the following:

(1) That it should not be permissible for any person other than a registered medical practitioner or a registered dentist to administer any anæsthetic for medical or surgical purposes.

(2) That registered dentists should be permitted to administer nitrous oxide and local dental anæsthetics, but no other anæsthetics.

(3) That it is undesirable that any person should act both as operator and administrator in the same case where this can be avoided, but it must be recognised that cases occur in practice, especially in sparsely populated districts, in which this responsibility must occasionally be undertaken.

This policy, he said, had now become obsolete, since dentists received special instruction in the use of anæsthetics. A new policy was, therefore, suggested in the following terms:

(1) That no person other than a registered medical practitioner should administer any anæsthetic for medical or surgical purposes, except that a registered dentist may administer anæsthetics for dental purposes only;

(2) That where a general anæsthetic is administered it is undesirable that any person should act both as operator and administrator in the same case where this can be avoided, but it must be recognised that cases occur in practice, especially in sparsely populated districts, in which this responsibility must occasionally be undertaken.

This proposal aroused considerable discussion. Opposition to the new attitude took two main lines: First, that dentists should not be allowed to administer anæsthetics; and, secondly, that it was no business of the Association to express an opinion on what the dentists should do. The first objection was expressed in three amendments, from Willesden, from St. Pancras, and from Birmingham.—Dr. C. F. SCOTT, speaking to the first, said that the General Medical Council had done a wrong thing in allowing instruction to dentists in administration of anæsthetics other than nitrous oxide. Some dentists were becoming professional anæsthetists. There was great danger in this.

Dr. TEMPLE GREY (Marylebone) pointed out that it did not suffice to be specially trained in the administration of anæsthetics; an anæsthetist must know how to treat cases when they go wrong. These were cases of poisoning, and the only man who could be safely trusted to handle a case of poisoning was a duly qualified medical man, who was also the only person in a rightful position before the coroner if death should ensure. Nevertheless, the amendments by Willesden and St. Pancras were lost.

Dr. G. DAIN (Birmingham) then moved:

That the recommendation be amended by the insertion in the second line of para. (1) between the words "dentist" and "may" of the following words: "who has received special instruction in the administration of anæsthetics."

Dr. W. MARRIS (Birmingham) pointed out that dentists themselves had recognised that some of their number were properly qualified to administer anæsthetics while others were not. If their regulations made a distinction there could be no harm in this amendment.—Dr. BONE and Dr. TEMPLE GREY objected strongly on the ground that it was no business of the doctors to adjudicate between the dentists.—Dr. DAIN replied that the Association had held for years that only qualified medical men ought to administer anæsthetics. This policy was now to be modified because there was another body of men trained to give anæsthetics. But the Dentists' Register contained the names of thousands of people who had had no such instruction.

The Birmingham amendment was carried, and on the motion of Dr. D'EWART and Dr. P. MACDONALD the final clause was altered so that the policy as passed read:

(1) That no person other than a registered medical practitioner should administer any anæsthetic for medical or surgical purposes, except that a registered dentist who has received special instruction in the administration of anæsthetics may administer anæsthetics for dental purposes only;

(2) That where a general anæsthetic is administered it is undesirable that any person should act both as operator and administrator in the same case where this can be avoide

but it must be recognised that cases occur in practice, in which this responsibility may justifiably be undertaken.

Dr. BONE then moved :

That the fees for medical practitioners administering anæsthetics for dental operations (as an additional benefit under the National Health Insurance Acts), be as follows : (*a*) For the simple administration of nitrous oxide or a similar anæsthetic, 10*s.* 6*d.* if only one patient is dealt with, but if more than one patient is dealt with at the same time and place the fee should be 7*s.* 6*d.* per patient ; and (*b*) that for other administrations, whatever the anæsthetic, the fee should be one guinea.

An amendment from South Shields proposed to insert the word " minimum " before " fees " in each instance, and others by Worcester and Sheffield desired to make the fee in all cases one guinea and half a guinea respectively, but Dr. Bone pointed out that a bargain was being struck and it was no use passing resolutions asking for unobtainable fees. The scale had been carefully considered in committee. The amendments were all rejected, and after a discussion on emendations of the word " simple " by substituting " short " or " safe " or by omitting it, the motion was carried as proposed.

Dr. BONE then proposed and carried the recommendation of Council :

That it is inadvisable to press for the amendment of the Midwives Act, 1918, in order to secure that local authorities be made responsible for antenatal work to any greater extent than is at present the case.

Dr. M. W. RENTON (Dartford) proposed to refer the matter back to Council for a review of the difficulties of the general practitioner. Local authorities were taking not too little but too much responsibility and much antenatal work was being done by whole-time officers, while midwives were being educated to do the practitioner's work.—Dr. C. FLEMMING concurred, saying that it had come to be expected that district visitors should take pelvic measurements. This was due to the reticence of practitioners in undertaking the work.

Dr. H. M. RAVEN (Kent), Dr. HOWARD STRATFORD (Kensington), and Dr. MIDDLETON MARTIN (Glos.) supported Dr. Renton and urged the importance of keeping antenatal work in the hands of the doctor.

Dr. BONE agreed with the speakers but pointed out that the motion under discussion dealt solely with fees, having arisen out of a resolution of last year's Representative Body on that subject. What was wanted was to find out how the private practitioner could be used to get better antenatal treatment for the people. It was decided to allow Dr. Renton to withdraw his amendment at this stage, and to discuss the matter later.

Orthopædic Treatment.

The Council's report submitted a memorandum on orthopædic hospitals and clinics which came up for discussion under the motion :

That the specialist work of orthopædic treatment, whether at hospitals or clinics, should not be done by whole-time officers, but, on a part-time basis, by surgeons who need not necessarily be devoting all their attention to orthopædic work.

There was a strong feeling among a small section of the members that this would prejudice the quality of the work done. The objection was crystallised in an amendment by Windsor :

That orthopædic treatment, whether at hospitals or clinics, should be undertaken by those who have special knowledge of the subject, and as the needs of the patient to receive the most experienced handling are paramount, no restrictions should be placed on the appointment of full-time officers.

and in another by Miss E. H. JEBENS (Lambeth) and Dr. W. A. SWANN (St. Pancras) to omit the words after " basis." Both were rejected.

Another amendment, which failed, proposed by Dr. E. W. MASTERMAN (Camberwell), seconded by Dr. HOWARD STRATFORD (Kensington), sought to modify the motion by inserting the word " necessarily " or " usually."

Among those supporting the original motion was Dr. E. R. FOTHERGILL (Brighton) who maintained that the interests of the patient and of the doctor were always identical and that there was a serious menace in these clinics to the general practitioner and his work ; the general practitioner, he said, had been, was, and would be the best for the public to look to.—Dr. R. GORDON (Bath) declared that if whole-time officers were appointed to the clinics the general practitioner lost his interest in orthopædic conditions, and it came to pass that these children were never seen by anybody but the specialist, who was apt to treat them without consideration for any other condition from which they might be suffering.—Mr. H. S. SOUTTAR (Marylebone) said that the vast mass of orthopædic surgery in the country was being very well done by general surgeons and deprecated the increasing employment of whole-time workers. The physician, surgeon, or practitioner who was engaged in a general practice could deal far better with any case he took up than could the specialist.

Among those opposing the motion were Dr. G. F. OLDERSHAW (Liverpool) and Dr. DYKE. The latter said that his division considered that orthopædic surgery was a highly specialised technique which did not fall within the province of the general practitioner. There should be coöperation between the surgeon and the patient's own doctor.—To bring about this coördination, said Dr. F. J. HATHAWAY, replying for the Windsor amendment, was the proper duty of the British Medical Association. In so great a profession there must be specialists, and the general practitioner was always able to go up to the clinic and consult about his patients ; in general he was only too pleased to get the best advice he could about them.—Sir RICHARD LUCE said that any advance in surgery had been through a certain amount of specialisation and to pass so general and so sweeping a motion would be a most dangerous thing. It was wrong for the patient and disadvantageous for surgery that the patient should not have the opportunity of consulting a specialist.

Mr. MCADAM ECCLES observed that the thorough treatment of any case could only follow from close coöperation of four people—the orthopædic specialist, the general practitioner, the mother or nurse, and the patient. Orthopædic surgery had got into an anomalous position through a difference of opinion as to what cases belonged to it ; it was not such a wide speciality as many people seemed to think. Specialists were needed at the clinic to see the patient, in the first place at any rate, and general practitioners were needed to take their cases up to the clinic.

Dr. BONE pointed out that the suggestion was to train in each locality men capable of doing the special work.

Eventually the Council's recommendation was carried. The second recommendation,

That existing institutions should be utilised to their fullest extent,

passed without comment. The third was,

That the private practitioner should have free access to the work at hospitals and clinics for the purposes of observation and training, and that his services should be fully utilised by giving him a definite position in the scheme both at the clinic and in the domiciliary care of cases.

In answer to a question, Dr. Bone said that this meant full access to all cases in the hospital, not only his own.

Dr. LEWIS LLOYD (South Carnarvon) pointed out the difficulties that would arise if the patient of one practitioner in a small village were handled and discussed before his colleagues.

The final motion on this subject,

That the arrangements laid down in the B.M.A. scheme for school-children and maternity and child welfare clinics should apply equally in regard to orthopædic clinics,

brought an amendment from East Norfolk :

That the following words by added :—

But that efforts should be made to secure that a more stringent scrutiny be exercised in deciding which cases are, or are not, necessitous, than has been done under

omparable schemes for medical examination and treatment by Education Authorities.

In proposing this, Dr. H. WOODROFFE pointed out that in rural districts many people sent their children to the local school because there was no other. They could quite well afford ordinary fees, but were classed with the others as unable to pay anything. This victimised the general practitioner and the specialist.

The amendment was carried. The arrangements, as thus amended, read :

Briefly stated, the policy of the Association as regards treatment of school-children is to the effect (1) that treatment by an Education Authority should be confined to those children whose parents cannot afford to pay privately for treatment, parents being recommended to secure treatment for their children from their family doctor ; (2) that medical treatment and the treatment of refraction should be carried out by private practitioners; (3) that treatment of the children should normally not be carried out through voluntary hospitals, and that in cases where the work is so carried out, there must have been previous consultation with the hospital medical staff, who should be paid for this work ; (4) that where treatment by private practitioners (whether general practitioners, specialists, or both) is adopted, it should be by means of a "Treatment Centre" or clinic (for Model Scheme, *see British Medical Journal* Supplement, May 8th, 1915, p. 228), or, in sparsely populated districts by "recognition" of places where the local practitioner(s) should carry out the necessary treatment ; (5) that where practitioners in an area are desirous of carrying out treatment of school-children found defective, they should through the Division make representation to the Local Education Authority and place a scheme before that body ; (6) Divisions desirous of placing a scheme of treatment by local practitioners before the Local Education Authority will have the full support of the Association, but for purposes of coördination such schemes should be submitted to the Head Office of the Association prior to being forwarded to the Education Authority ; (7) that it is not part of the policy of the Association to resist the adoption of some other scheme preferred by the Education Authority on the ground that it involves the employment of whole-time officers for the purpose of treating necessitous children ; (8) that a scheme for treatment might be a combination of whole-time and private practitioners ; (9) that there is no objection to treatment by provident dispensaries, public medical services, or other contract medical practice organisations, provided the remuneration of the practitioners is adequate and that effect be given to the principle of free choice of doctor and of patient ; (10) that any scheme for reference of children to the Poor-law for treatment be opposed, but that efforts should be made to secure that a more stringent scrutiny be exercised in deciding which cases are, or are not, necessitous, than has been done under comparable schemes for medical examination and treatment by Education Authorities.

The Representative Body.

It was announced during the course of the day that the Chairman of the Representative Body (Dr. C. O. Hawthorne) and the Treasurer (Mr. Bishop Harman) had been elected unopposed. A contest for Deputy Chairman resulted in the election of Dr. A. Lyndon. The following gentlemen were elected to the Council, without opposition in all cases but two, by the votes of the "group representatives" : G. B. Hillman, I. W. Johnson, A. M. Webber, J. R. Prytherch, E. B. Turner, W. Paterson, H. C. Bristowe, A. Lyndon, G. W. Miller, J. Patrick, R. C. Peacocke, and J. Armstrong.

A MEMORIAL TO LORD LISTER.—Bishop Hamilton Baynes has dedicated two beds in Birmingham General Hospital, one to commemorate the beneficial work of Lister, and one endowed by university students from funds collected at last year's carnival. A stained glass window in the hospital chapel was dedicated at the same time in memory of the late Sir John Holder.

HAMPSHIRE HOME OF RECOVERY.—Hitherto this home at Stoneham Park has only been able to receive men recovering from surgical operations. An effort is now being made to provide a new wing for the benefit of women patients. The home receives patients from the four general hospitals in the county as soon as they can be moved.

CONGRESS OF THE ROYAL SANITARY INSTITUTE.

HASTINGS, JULY 11TH TO 16TH.

WE have already reported the opening proceedings of the Royal Sanitary Congress which met at Hastings last week under the presidency of Sir WILLIAM JOYNSON-HICKS, Secretary of State for Home Affairs. The work of the sections continued until Friday, and on the following day there were excursions in the neighbourhood.

Personal Hygiene.

Sir JOHN ROBERTSON (Birmingham), in his presidential address to the Section of Sanitary Science and Preventive Medicine, said that people were expected to pick up the knowledge necessary to keep themselves in good health. He was well aware that the medical profession was far from knowing all that should be known about the care of the body. Nevertheless there was a great difference between the knowledge possessed by the physiologist and the knowledge requisite to keep the body in health. He thought the latter should be a really important subject in the educational curriculum. Two things were lacking at present : first, an appreciation by the public of the value of such knowledge ; and, secondly, a group of well-informed teachers. People who really understood the needs of the body would refuse to work under unwholesome conditions and employers would recognise that these conditions were damaging. The subject of elementary physiology ought to be made a real living thing. The Medical Research Council was a very fine organisation for investigating problems of the causation and prevention of disease, but its investigations did not bear the fruit they should. What was needed was general recognition of the fact that much ill-health was due to lack of knowledge, and he hoped that the new London School of Hygiene would do a great deal in preparing teachers to go out into the districts and spread this necessary knowledge.

Roads and Towns : Uses of Sewer Gas.

Mr. LESSEL MCKENZIE (Bristol), President of the Conference of Engineers and Surveyors, said that road engineers had every reason to be satisfied with the progress made since the war in producing impervious surfaces with little dust and no need for watering. In Bristol 5000 houses had been built, which almost met the demand of those able to pay the rent, and they now had to face the problem of providing houses for those unable to pay more than 6*s.* or 7*s.* a week, many of whom were living under appalling conditions. The tendency in town-planning nowadays was to lay down the skeleton of a scheme and make the details as elastic as possible. Planning of areas already built on was exceedingly difficult. Useful work in regional planning was being done in some parts of the country, but there was no statutory power behind such schemes. Instead of each authority having its own undertakings, it would often be much more economical to have joint schemes. As regards refuse disposal destruction by burning was costly and a preliminary screening of the refuse was to be commended. The working of the new plant, designed by Messrs. Woodall and Duckham, now being tested in London, would be watched with interest.

Mr. McKenzie went on to refer to the production of gas from sewage. At the Gross Zieter sewage works in Germany a gas was produced which gave the necessary power for the works and was supplied to a population of 8000 for domestic purposes. At Emfort a net profit of £4200 was said to have been obtained last year by the utilisation of sewer gas. In conclusion, Mr. McKenzie expressed the opinion that cremation would have to be accepted as the only proper way of disposing of human remains.

Changes in the Poor-law.

Mrs. DYMOND (Mayoress of Hastings), in her presidential address to the Conference of Health

Visitors, referred hopefully to the proposed abolition of the guardians and the handing of their functions to county councils and county borough councils. At present there was much waste of time and irritation caused by several bodies collecting the same information. For example, the health visitor obtained all the information about a family; the man lost his job and the same information was obtained again by the labour exchange; the man applied to the guardians and the information was obtained a third time by the relieving officer. If the proposed change were carried out the local authorities would not have to submit insignificant items for the approval of the Ministry, the stigma of pauperism would disappear, and the change would benefit many children. The children at present boarded out by the guardians would come under the care of the health visitors and also the children boarded out under the Childrens Act of 1908. In many unions the inspection of such children was still carried out by a man. Most men, except doctors, were helplessly at sea with a baby and depended for their information on the foster-mother, whom they were supposed to inspect. The present method of supplying orders for admission to the Poor-law maternity wards was also open to criticism. The details had to be given by the applicant to a male relieving officer, whereas under the new scheme the necessary inquiries would be made by the health visitors.

Welfare Work and Hygiene in Factories.

Major ISIDORE SALMON (London), in his address to the section of Hygiene in Industry, considered this question under two headings: (*a*) personal hygiene as it applies to the work, and (*b*) factory hygiene as it applies to the production of food in the factory. As regards the first he was convinced that the care of the human machine should be an integral part of the organisation of any business. In the rough division of departments into productive and non-productive, welfare work was unfortunately classed among the latter, but should be classed among the former. Encouragement during convalescence was one important item. Many modern works welfare departments had their clinics, medical officers, dental surgeries, manicure and pedicure sections, massage and electrical treatment rooms. Others, too, had consultant hospital and convalescent services. His opinion was that every welfare section should carry out extensive home sick-visiting for the gradual absorption into active work of all who had been on the sick list. Industry as a whole, and consequently the nation, benefited enormously from sane welfare work. The slogan "Safety first" should apply to disease. One important factor was the right "placing of the staff."

Hygienic production of food was of increasing importance owing to the modern tendency to buy prepared foods and to take meals away from home, and the betterment of the conditions under which food is produced was looked after in his firm by a comprehensive laboratory service quite separate from the department which supervised the personal hygiene of the staff. As one example the phenomenal growth of the ice-cream industry made supervision of all the processes of production and storage extremely necessary. When the ice-cream was once frozen little change took place in the bacterial flora. In the various States of the U.S.A. there were various bacterial standards for ice-cream, but here there were none. Again, in the case of prepared meat products, preservatives were only allowed in the manufacture of sausages, and consequently the quality of the raw products should be controlled. It was a stupendous task for large firms to live up to the standard of bacteriological cleanliness required by modern conditions. Factory disinfection often covered up bad conditions, and the indiscriminate use of disinfectants should be condemned both in the interests of the workers and the quality of the foodstuffs. Factory ventilation had received insufficient attention. In a recent visit to China he had found the hygienic conditions of the food-packing factories equal to anything in England or the U.S.A.

The new Factory Bill now under consideration was meeting with opposition from progressive industrialists because they were afraid of the extended powers which gave to Ministerial rules the force of law. Hygiene in industry would be impeded rather than stimulated by an Act which placed such power in the hands of bureaucrats. Lastly he thought the application of hygiene to industry would do much to improve the relations between employer and employed.

Rheumatism.

Sir WILLIAM WILLCOX (London), in a lecture to the Congress on July 12th, discussed the causation of various forms of rheumatism, and showed how much disablement was due to chronic arthritis. More statistical research was needed, he said, to determine the influence of occupation. He referred to the influence by focal sepsis, constitutional predisposition, the condition of the skin, and external influences such as climate, damp, diet, and occupation. He expressed his belief in the provision of dental clinics for industrial workers and in the extension of the provision of baths to other industries besides collieries, and in the establishment of clinics for rheumatic diseases which would act as clearing-houses and thus enable the facilities of spa treatment to be retained for those likely to benefit therefrom.

Dr. A. ROLLIER (Leysin, Switzerland), in an address to the Conference on Health Resorts, referred especially to the use of heliotherapy in combination with sea-bathing in the treatment of rheumatism, and went on to emphasise the need for providing suitable work for patients suffering from these chronic diseases in order to combat the deadly combination of boredom and despair induced by the monotonous routine of treatment.

Dr. FORTESCUE FOX spoke of the value of British spas, whilst Dr. M. B. RAY, Mr. W. A. APPLETON (General Federation of Trade Unions), and Mr. JOHN HATTON (British Spas Federation) dealt with the provision of spa treatment for insured persons. Mr. Hatton described a scheme by which 30,000 cases a year might have a four weeks' course of treatment with existing bathing accommodation. The scheme involved no fresh administrative machinery and no capital outlay, he said, and could be started without delay.

Small-pox.

There was keen discussion at the Section of Sanitary Science on the measures needed to control small-pox. Some speakers believed that the mild type of variola is so different from ordinary small-pox as to deserve a distinguishing name—e.g., variola minor or para-smallpox. They thought that the mild type can be trusted to breed true, that it is not more serious than chicken-pox, and that an outbreak of this disease does not justify legislation to tighten up infant vaccination or wholesale revaccination. Dr. C. K. MILLARD (M.O.H., Leicester) thought that when an outbreak occurred the name small-pox should be used only until it was known which variety was present.—Dr. R. P. GARROW (M.O.H., Chesterfield), after six years' experience, found variola minor was still breeding true. Other speakers, however, adopted the view that the type may change at any time and that the ordinary small-pox precautions should be taken for variola minor. It was generally accepted that both types of the disease immunise the patient against vaccination, but after variola minor the immunity only lasts a short time. Up to now there has been practically no mortality from the mild type of the disease. Vaccination protects against both types.—Dr. C. S. THOMSON (M.O.H., Deptford) suggested that one of the reasons why people object to vaccination is that it is compulsory. Only 30 per cent. of the infants in Deptford were vaccinated, he said, but he had been able to get 90 per cent. of the school-children immunised against diphtheria. Other speakers thought that reliance solely on vaccination had retarded research as to methods of treatment, especially with serums.

Another suggestion was that the objections to vaccination might be minimised by perfection of technique and by using a milder form of vaccine which would give immunity for the period of an epidemic.

Notifiable Diseases of the Nervous System.

Papers on this subject were read by Dr. F. M. R. WALSHE, Dr. SALUSBURY MACNALTY, and Dr. J. A. H. BRINCKER (London), attention being chiefly devoted to poliomyelitis, polio-encephalitis, and encephalitis lethargica. A discussion followed, towards the end of which Dr. DUNCAN FORBES (M.O.H., Brighton) pointed out that not much hope had been held out from the preventive point of view.—Colonel A. H. TUBBY (London) gave a warning against the use of electricity and massage before the destructive stage of acute poliomyelitis was quite over, and emphasised the need for continuity of treatment. Each case should be in charge of one physician and one surgeon from the beginning. It was mentioned that the experts of the London County Council were available for aid in diagnosis in districts near London.—Prof. JAMES MCINTOSH (London) showed that very many of the clinical diagnoses of encephalitis lethargica were not confirmed at the post-mortem.

Bovine Tuberculosis.

The Section of Veterinary Hygiene dealt with the effect of recent legislation on tuberculous infection in milk. Many county boroughs until recently have held the powers conveyed by the "milk clauses," which enabled their veterinary inspectors to go into other districts to search for cows with tuberculous udders in the herds supplying them with milk. Mr. J. S. LLOYD (veterinary inspector, Sheffield) expressed disappointment at the loss of these powers, and a good deal of sympathy was expressed with his view, but the consensus of opinion at the meeting was that the new powers given by the Tuberculosis Order and the Milk Act were so recent that the county councils had not yet had time to develop their machinery. It was agreed that many counties were quite inactive; others, however, were taking energetic measures.—Dr. W. M. ASH (M.O.H., Derbyshire) advocated dealing with tuberculous cows entirely under the Tuberculosis Order and leaving the more cumbersome procedure of the Milk Act alone. He showed that in this way very many tuberculous cows had been condemned, and good coöperation without red tape had been established between the veterinary departments of the county council of Derbyshire and the county borough of Sheffield.—Dr. LEIGHTON (Edinburgh) spoke about the large number of tuberculous cows which had been condemned in the neighbourhood of Edinburgh, and several speakers asserted that the new powers were being well used in Scotland. Some favoured whole-time, others part-time veterinary appointments.—Colonel BRITTLEBANK (veterinary inspector, Manchester) agreed that there had been a temporary setback owing to the transfer of the powers and that the percentages of tuberculous mixed milks had shown an increase, but he thought they should exercise patience and give the new legislation a chance. The difficulty of keeping tested herds tubercle-free was discussed. Colonel Brittlebank mentioned that tubercle bacilli were sometimes found in Certified Milk. The explanation of the reinfection of tested herds which were maintained by breeding only was to be sought, it was pointed out, in infected pastures, the introduction on to the farm of infected manure, and other accidental contaminations. An instance was cited of the infection of a tubercle-free herd near Edinburgh owing to a stray cow finding its way into the herd. The stray cow was afterwards found to be tuberculous, but had spent half a day in the tubercle-free herd. At the next half-yearly testing four cows in the tested herd gave a reaction. A speaker from Shanghai said the cattle from the hills showed no tubercle, while those from the dairy farms were heavily infected. An Australian speaker did not agree, but said he had found in some instances 30 per cent. of tuberculous animals among steers in Queensland living in the open.—Mr. E. G. BURNDRED (veterinary inspector, Blackburn) thought the veterinary inspection for Grade A milk should be quarterly.

The following resolution was adopted on the proposal of Prof. G. H. WOOLDRIDGE (London):

"That the time has arrived for the control of the sale, distribution, and use of tuberculin and the standardisation of the methods of its preparation."

Puerperal Fever.

The Maternity and Child Welfare Section devoted one morning to the discussion of puerperal fever. Dr. J. BRIGHT BANISTER (London) described the coöperation necessary to bring about a better obstetric system and the prevention of puerperal fever. First of all the public, and especially the women, must demand a higher standard of antenatal supervision and a greater regard for bodily hygiene. Secondly, the local authorities must provide better housing conditions and efficient sanitary service—he had had, for example, special reason to complain of the removal of refuse in London—and should supply sterilised outfits for confinements in their area. Thirdly, there was the part of the doctor or midwife on whose behalf he pleaded for sympathy, as she often had to do her work under very difficult conditions. He emphasised the importance of removing septic foci and of the care needed to avoid conveying infection.

Dr. A. REMINGTON HOBBS described a method of promoting drainage of the uterus by the introduction of glycerine without an anæsthetic and without injury to the cervix or discomfort to the patient.

MIDDLESEX HOSPITAL.

NEW INSTITUTE OF BIOCHEMISTRY.

Prince Arthur of Connaught, chairman of the board of governors of Middlesex Hospital, accompanied by Princess Arthur, presided on Wednesday last at the laying of the foundation-stone of the new Institute of Biochemistry, for the provision of which Mr. S. A. Courtauld had made a magnificent gift of £30,000.

Prince ARTHUR said, in the course of a brief speech, that he would take the opportunity of making a very welcome announcement. "Mr. Courtauld," he said, "is so determined to ensure that the workers in this department of scientific endeavour shall lack nothing in these researches that he has now increased the amount of his list from the noble sum of £30,000 to the princely sum of £40,000. I will not dilate upon our further indebtedness to his great liberality. I will only assure you that we all thank him most warmly from the bottom of our hearts."

The proceedings opened with a brief address from Sir JOHN BLAND-SUTTON. He said:—

Biochemistry in Relation to Medicine.

Dictionaries printed before the year 1900 contain no such word as biochemistry. The name is now familiar, and, though new, the science is old; it was founded by Lavoisier at the end of the eighteenth century. Biochemistry is concerned with the application of the principles of chemistry and physiology to the study and interpretation of the phenomena of life. Some 250 years ago Linnæus, the great Swedish naturalist, arranged the kingdoms of nature in three classes: minerals, plants, and animals. He defined his famous trilogy in this terse way: Stones grow. Plants grow and live. Animals grow, live, and feel. The three kingdoms were for many years believed by naturalists to be distinct from each other.

The history of great discoveries shows, in many instances, that they were unappreciated for a century or more. This is true of biochemistry. The microscope revealed to able investigators like Ferdinand Cohn, Pasteur, Koch, and their followers, the existence of myriads of minute living things concerning which biologists were puzzled to decide whether they were plants or animals! Such discoveries bridged the gap between plants and animals, and the close study of these minute organisms—microbes as they were called—proved them to be the causes of fermentation, putrefaction, and suppuration; and many infective diseases.

Primitive man, who personified the sun and moon, the wind and sea, regarded disease as due to the action of demons. The discovery of microbes gave colour to the ancient belief that disease is due to something which enters the body of man. We know to-day that the microbes of disease and parasites enter our bodies with the air we breathe; with food, and with water. Many are stealthily and unsuspectedly conveyed to us by biting insects, such as fleas, flies, gnats, and ticks, and even by snails. The study of bacteria and micrococci has taught us that some forms of infectious disease, such as tetanus and gas-gangrene, are derived from cultivated soil saturated with animal manure, and some are parasites of plants which have transferred themselves to man and have acquired for animals, as well as for man, virulent properties. There are many diseases obviously due to microbes, but the actual agents have not yet been detected. Now that the gulf is bridged between plants and animals, it is the ambition of biochemists to discover the connecting link between stones and plants in order to find out how life arose from inorganic matter.

The laboratory, of which the foundation-stone is to be "well and truly laid" is not primarily intended to solve such matters. Men capable of judging the effects of biochemistry on the practice of medicine believe that it will ultimately promote human welfare by helping man to protect himself from such things as the deleterious effects of environment, the struggle for food, and the germs of disease which surround him on every side. It is also intimately concerned with the processes of life which begin with man's conception and continue throughout the subsequent phases of his life. It will help him to fulfil Kipling's fine

"Be fit—be fit, in mind and body be fit."

Just as the flame of a candle is produced by the oxidation of organic matter, so is the heat of the body maintained by smokeless combustion of foodstuffs and muscular action—work. This is the flame of life, and the expression is something more than metaphor. Few sentences contain so much in few words as the phrase, "conservation of energy"; it applies to the mechanism of life, as well as to machinery.

I have always maintained that laboratories for investigating disease should be in close association with hospitals concerned with the cure of disease. The future of medicine does not lie in prescribing drugs. The day may come when the biochemical laboratory will displace the dispensary. Lavoisier was the founder of biochemistry. In 1794 his head was cut off by the apostles of liberty, equality, and fraternity, on the excuse that the Republic had no need of scientists! Mr. Courtauld has no fear that such a fate awaits him. Judgment is a necessary adjunct to benevolence, and the wisdom shown in building this laboratory indicates his keen appreciation of the great part science plays in practical medicine. Mr. Courtauld, by helping our medical school in this way during his lifetime, can be satisfied that the money he gives will be devoted to the object he has at heart. The laboratory will be useful in the daily work of the hospital. It is said of Linnaeus that he imbued his pupils with his own intense enthusiasm and acquisitiveness; if our excellent professor of biochemistry emulates Linnæus we may be hopeful that a discovery will one day be made within the walls of this laboratory which will make the world gape with astonishment.

Mr. Courtauld's Beneficence.

Mr. Courtauld then laid the foundation-stone, when Mr. S. G. ASHER, chairman of the Medical School Committee, moved a vote of thanks for his great generosity, which was seconded by Mr. A. E. WEBB-JOHNSON in the following words:—

In speaking, I cannot but cast my mind back to before the war, when Sir John Bland-Sutton showed his faith in the scientific future of this medical school by his gift of the pathological institute which bears his name.

We are present at a ceremony which marks a tremendous advance in the placing of scientific medicine in this country on a firm basis. Biochemical laboratories there are already in some of our universities, but a great biochemical institute attached to a large general hospital and medical school is the right way to help the advance of medical education and research. The foundations of scientific work in this school were laid deep in the past. They were made secure by Sir John Bland-Sutton. This development which is initiated to-day reinforces those foundations and makes the superstructure also secure for all time.

We owe the present great advance to our friend, Mr. Courtauld. It is not the first indication of his interest in medical research and education, for it is but a few years since he gave £20,000 to endow the chair of anatomy, one of the fundamental medical sciences.

Among the happiest results of my work for this medical school have been the friendships which I have made, and one which I cherish most closely is that which I am privileged to enjoy with Mr. Courtauld. Since I have known him well I have learnt to appreciate his earnest desire to do all in his power to improve the lot of those who are less fortunately placed than he. Near his home and amongst his own people his efforts are directed to improving the housing, providing clubs and recreation rooms for the young, hospitals for the sick, and homes for the aged. That is the immediate task before his eye, but he has had a greater vision. He has been inspired to come to headquarters and has realised that by giving his support to medical education and research he reaches the very factory of medicine where new discoveries are made and men are taught to apply those discoveries for the benefit of all mankind.

Mr. Courtauld has done more than give. His presence here to-day is a further indication of his personal interest, and I have the greatest pleasure in voicing our thanks to him for himself laying this stone. The inherent vital elements in this great institute will be the men who work in its walls and the ideals which they cherish and teach. The donor need have no qualms for the future, for his gift could not be in safer hands than those of Prof. Dodds, who will have the cordial coöperation and support of Prof. McIntosh.

A vote of thanks to Prince Arthur of Connaught for presiding was proposed by Lord MILDMAY OF FLETE, and seconded by Mr. ERIC PEARCE GOULD, and cordially received.

The New Building.

The new Institute will adjoin the hospital and be entered from Union-street. In its structure as well as equipment Mr. Alner W. Hall, the architect, has met the requirements of expert advice, and especially the desires of Prof. E. C. Dodds, who will be the director. Much recent successful work falling under the general and inclusive heading of biochemistry has made it possible to foresee with some certainty the various laboratories which will be required, and how they should be equipped to deal with the different ramifications of a growing science. Having regard to the increasing literature, directly or indirectly connected with biochemistry, the architect has made arrangement in his plans for a reference library.

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.

ANNUAL REPORT OF THE COUNCIL.

THE Council reports a year of satisfactory work, with substantial increase in the membership and in the financial resources of the Society. 1057 new members have been elected during the year, the loss of members through death and other causes being 308. On Dec. 31st, 1926, the number of members was 10,070.

The number of applications for advice and assistance from members was 961, as compared with 801 for the year 1925 and 785 for 1924. In a large majority of the cases satisfactory results were obtained without litigation, and the results of most of the cases in which litigation occurred were satisfactory. The Council acknowledges with appreciation the skill and energy with which the Society's solicitors—Messrs. Le Brasseur and Oakley—and the secretaries, conduct the work of the Society.

It is noted that within the past year several practitioners have joined the Society after having already become involved in serious litigation which, of course, could not be undertaken for them on that account, although certain assistance has been given. With a view to encouraging young practitioners to join the Society as soon as they become registered, no entrance fee is required from them if they apply for membership within a year of the date on which their names are entered on the Medical or Dentists' Register.

Solicitors' Report.

This year is marked chiefly by the first defence in respect of a capital criminal charge which the Society has since its commencement been called upon to undertake. The gravity of the case, when first before the Society, was immediately appreciated, and prompt steps were taken for the protection of one of the two doctors concerned. The other, at that stage, not realising the gravity of his position, had not then applied to the Society. On the face of the depositions the case appeared to present insur-

mountable difficulties in the defence, but after its very careful investigation and consideration, the Society was satisfied as to the innocence of both its members and eventually secured their acquittal. In its initial stages the Society was hampered by the failure of one member concerned to apply for its assistance, but fortunately the member realised in time the extreme gravity of his position, and from that moment the Society had the matter entirely in its own hands.

Another matter again emphasised is the neglect of certain practitioners in the use of X rays. It is not suggested that this necessarily implies neglect, but that an X ray is a protective measure; without it a member's position is prejudiced should a claim be made against him. Some cases are cited where the Society has been put to considerable expense, as also the member, through this matter. The solicitors say: "Some members do not seem to heed the Society's warning, and only learn by experience, and it might well be considered that the Society should penalise their members who without adequate reason neglect to obtain X rays wherever possible, or, should this advantage be refused by the patient, to have such refusal recorded in writing."

Examples of Alleged Negligence in Fracture Cases.

A member treated a child for a fracture and both before and after setting the fracture employed X rays. The arm was strapped up in position, and directions given to the mother that it was not to be moved nor the strappings interfered with. After doing this the member did not visit the child for a period of some eight days. As his attendance had not been sought for nor any matter brought to his knowledge, he had felt justified in allowing the length of time to elapse. On the next visit to the child he found the fracture to be in an unsatisfactory state with evidence of the strappings having been interfered with. The patient was then removed out of his care and allegations of negligence were made against him. Unfortunately the doctor on his own initiative, and without obtaining any advice from the Society, made a verbal offer to the patient's parents to bear the expense of such other treatment which had been obtained, and when subsequently allegations were made against him and expert opinion obtained, it was considered that the member was placed in a very difficult position by reason of his gratuitous offer. In all the circumstances it was deemed advisable in his interests to arrive at a settlement.

A claim was made against a member in respect of a fracture of the forearm which had united badly, necessitating a subsequent operation. The fracture had been treated under the guidance of X ray photographs, and during his absence his partner had sent the patient into hospital, not being satisfied with the union of the fracture. Later on the patient was seen by a consultant who reported that there was a malunited fracture. After operation it was reported that the ununited ends of the fractured bone were put into perfect position and fixed with metal plates, the arm then being fixed in a plaster case to be kept on for eight weeks. The patient was informed that he had no just cause for complaint against his medical attendant, and all liability was repudiated on his behalf. Nothing further was heard of the case.

A complaint was made against a member in reference to his treatment of a fractured wrist. The fracture had been X rayed and put up on a Carr's splint and did well until the splint was removed and massage was employed. The doctor had given instructions that the splint was to be applied at night, but this was not done, and the patient used her hand although warned not to do so. Deformity ensued, and the patient was taken to a specialist who operated on the wrist. The patient's husband said that the cost to him had been £150, and he expressed surprise that an account should be sent in for medical attendance. A reply to the husband's letter was drafted for the member to send, and as he did not wish to sue for his fees and no action was taken by the patient or her husband, the matter was allowed to rest.

Various other typical cases dealt with are summarised under the headings Negligence and Unskilfulness, Libel and Slander, Medical Ethics.

Professional Secrecy.

Some of those quoted under the last heading are of especial interest in view of the recent debate on this subject.[1]

[1] THE LANCET, 1927, ii., 14.

The Society's comments, which precede the summary of illustrative cases, are as follows:—

It is the duty of a medical adviser to keep secret all matters concerning his patients which become known to him in his capacity of doctor. Nothing should induce him to disclose what, in his professional capacity, has come to his knowledge, unless he first has the consent of his patient to the information being given; and the patient's consent ought, if possible, to be in writing and signed by the patient.

The rule of absolute secrecy as regards what comes to a medical man's knowledge professionally should be observed almost without exception. Where, however, a medical man by keeping silent becomes passively acquiescent in the intended perpetration of a crime, the carrying out of which he can effectively stop if he reveals what he knows, then he should make it clear to his patient in the first instance that, if the crime is persisted in, it will be his duty to break the rule of secrecy.

The Council of the Society considers that it is the duty of a medical man *not* to disclose the nature or circumstances of the disease or illness from which his patient is suffering unless he is satisfied that the inquiry is made by a near relative who has a bona fide obligation to maintain the patient or to assist in securing the comfort or the recovery of the patient. Such disclosure is not to be made in any case where the patient is able to consent and has not actually consented. This rule does not apply when there is a statutory obligation to disclose (this includes insanity and notifiable diseases), or where the disclosure is ordered by a competent court of law.

A member received a request from a lady for information as to statements made to him by relatives of a man who had been under his observation in regard to his mental condition. He had already declined to give any information, and he was advised to adhere to that position.

A member received a request from a postmaster that he should state the ailment from which a post-office employee was suffering to whom he had given a sickness certificate of unfitness for work. He was advised to tell the postmaster that he could give the information asked for only with the consent of the patient, and that if her consent was obtained he would supply the information.

In a case where exception was taken by a judge at the Old Bailey to a doctor giving information about a patient of his to the defendant's counsel, the Society advised the doctor to see the judge privately, and after his interview with the judge there was no occasion for the Society's intervention.

A member asked if he should inform the mother of a girl who had told him that she feared she was pregnant as she had missed her periods for two months, and who had asked him if he would help her to prevent pregnancy. She remarked that she would commit suicide otherwise. The member was advised not to inform the mother, unless he had reason to believe that there was any likelihood of the girl attempting suicide, which in this case did not appear to be so.

A member received a request from the solicitors of a patient to be supplied with a report of his attendance on her. She had suffered from gonorrhœa and was contemplating divorce proceedings against her husband, who had also been attended by the doctor for gonorrhœa. The member was advised that he could properly supply the solicitors with a full report of his attendance on their client, but should not give them any information in regard to the husband unless subpœnaed and required to give evidence about him.

A member asked whether he ought to report to an insurance company a fact connected with a patient's previous ill-health of which he had not been informed when filling in a form for the insurance company. He was advised that he should not report the matter to the insurance company, but should warn his patient of the possibility of the withholding of any material fact affecting the validity of the insurance, leaving it to the patient to inform the company or not, as he thought right.

Protection in Many Aspects.

Examples of difficulties in connexion with partners, assistants, and locum tenents that have been smoothed out after consultation with the Society are set out. Attention is drawn to problems of notification, and a list of cases in which medical practitioners are required to send a notification to a public

authority is appended. Some of the advice given to members who have asked for guidance as to the ethical position in connexion with articles or advertisements in the public press makes interesting reading.

Sections on buying and selling practices, coroner's inquests, medical certificates, medical evidence, Poor-law medical officers and public vaccinators, unqualified medical practice, income-tax, and dental practice conclude a document which is very much more than a mere annual report of the activities of the Society. The financial position remains strong, the surplus funds amounting to £40,600 at the end of 1926, against £38,300 the previous year.

Members are urged, in their own interest and in that of the Society, to refer matters immediately to the Society *before dealing with them in any other way*. Every year loss accrues to the Society, and to the members concerned, by neglect of this precaution.

NATIONAL HEALTH SERVICES IN IRELAND.

(FROM OUR OWN CORRESPONDENT.)

IN May, 1924, the Minister for Finance appointed a committee of inquiry with the following terms of reference :—

(1) To report on the advisability of the continued maintenance of the system of National Health Insurance in its present form and to make any recommendations considered proper in that connexion.

(2) To consider whether it was desirable to institute a system of medical treatment on a contributory basis, and, if so, to advise the form such system should take.

(3) To report on the question whether the medical services at present assisted or maintained out of State or local funds could be improved as respects efficiency and economy; and, if so, in what manner, due regard being had to any recommendations under the preceding paragraph (2).

An interim report was presented to the Minister in February, 1925, and the final report has now been published. A majority of the committee makes a series of recommendations, which they summarise as follows :—

National Health Insurance.

(*a*) The termination as from Dec. 31st, 1927, of the National Health Insurance (Prolongation of Insurance) Act, 1921.

(*b*) The extension of medical benefit to insured persons, with an increase of 2*d*. in the existing weekly contribution rates, to be borne equally by the employer and the employee.

(*c*) The diversion to medical benefit of the monies set free from insurance funds consequent on the abolition of insurance committees and the transfer to local authorities of responsibility for the treatment of insured persons suffering from tuberculosis.

(*d*) The payment by the State of compensation to local authorities in view of the additional burden placed on their funds by the transfer to them of responsibility for the treatment of insured persons suffering from tuberculosis.

(*e*) The provision of four whole-time district medical referees on a permanent basis in connexion with the National Health Insurance scheme.

Poor-law Medical Services.

(*a*) The extension of the Dispensary Nursing Service, especially in those areas on the western seaboard which are not already covered.

(*b*) The provision by the State of substantial aid towards the cost of erecting, remodelling, and reconstructing central dispensaries as and where required.

(*c*) The remission or refundment (in whole or in part, according to the circumstances) of taxes incident to motor usage in the case of doctors, nurses, and midwives engaged in the public service in rural areas.

(*d*) The extension of the Education (Provision of Meals) (Ireland) Acts, 1914–17, to rural districts.

(*e*) The provision of financial assistance for the construction, modernisation, and equipment of county and district hospitals and institutions.

(*f*) The establishment of a national (dispensary and hospital) medical service.

(*g*) The recoupment by the State of one-half of the salaries of the county medical officers of health.

(*h*) The setting up of a standing council to advise and assist the Minister of Local Government on health matters.

(*i*) The appointment of a small committee of scientific experts to devise a scheme of medical research suitable for the Irish Free State.

Two members of the committee submit a minority report, which is mainly devoted to criticism of the proposals of the majority, and particularly of those for the provision of medical benefit for insured persons, and for the establishment of a national medical service for the treatment of poor persons. One definite proposal is made with regard to the treatment of the sick poor in the four county boroughs in the Free State—namely, that arrangements should be made with voluntary hospitals for the provision of dispensary treatment for poor persons, and with medical practitioners for domiciliary treatment.

The outstanding features of the majority report are the recommendations for the provision of medical benefit for the insured, and for the establishment of a national medical service for the treatment of the poor. Both these recommendations have been made by several previous committees which have inquired into the public medical services of Ireland, and in principle, at any rate, they have been accepted by the medical profession. There is certain to be public opposition to both of them on the ground of expense. The committee admit that its present proposals are not the best that they could put forward, but they are deterred by considerations of expense from recommending the adoption of a thorough and comprehensive medical scheme, of the outlines of which they give particulars. Dr. Robert J. Rowlette, who signs the majority report, dissents from his colleagues on this point, and recommends the establishment of a comprehensive scheme of medical services forthwith.

It is not likely that any step will be taken by the Government on the report until they have had the opportunity to study the cognate report of the commission on the Relief of the Destitute Sick and Poor, which is said to have been completed, and to be now in the process of printing.

PARIS.

(FROM OUR OWN CORRESPONDENTS.)

A Sign of Hepatic Insufficiency.

NOT enough attention has been drawn, says Dr. Noël Fiessinger, of Paris, to a sign of gross hepatic insufficiency which may be observed in the mouth. On inspecting the buccal and pharyngeal mucous membrane, he states, it is common to see a special red colour—a vivid carmine—over the palate, the throat, and the inner side of the cheeks; the tongue also may show this discoloration at the tip, at the sides, and often also at the base. In serious cases it peels completely and is as glazed as in typhoid, though more red. The patients complain especially of heat or dryness in the mouth. The sign is seen especially in alcoholic cirrhosis, in severe icterus, and in serious toxic and infective states; or sometimes in the course of a mild chronic jaundice. When seen, it suggests that the condition is serious, requiring rigorous treatment and absolute rest, and the prognosis should be very guarded. When the colour persists it must give rise to a fear of complications such as gastric hæmorrhage or severe jaundice. It is apparently due to vascular degeneration; on each side of the uvula one may see varicosity of the capillaries.

Heliotherapy in France.

Until quite recently there were no institutions for heliotherapy in this country of the type familiar in Switzerland. This deficiency is, however, now being made good. A sanatorium for the treatment of non-pulmonary tuberculosis has been opened at Courmettes, in the Alpes Maritimes; a second, particularly well equipped, at Odeillo, in the Pyrénées Orientales. The third, at Briançon, is exclusively for ex-Service men.

An Index Analyticus Cancerologiæ is to be published by the French League against cancer, and will contain the names of works on this disease, written in all parts of the world. National committees will supply bibliographical data from the more important countries. The general secretary is A. Lacassagne, 26, rue d'Ulm, Paris, 5e, and the index will appear every three months. For countries outside France, the annual subscription will be 60 francs, and copies are to be obtained from Masson and Cie, 120, Boulevard St. Germain, Paris.

The Association for the Development of Medical Relations, whose office is at the Faculté de Médecine, 12, rue de l'École de Médecine, Paris, is becoming more and more effective as an aid to foreign students in France. It serves as a general information bureau, and medical men desiring to follow post-graduate courses or to attend hospital work in Paris will find it very helpful.

A model hospital for the treatment of infectious diseases has just been completed at Orleans. Patients are isolated in glass-walled compartments, special baths are given when patients enter and leave, and all furniture and utensils may be cleansed with chlorine antiseptics.

Scholarships providing free tuition for the first year of medical study have just been provided by the French Government for students whose grades in the preliminary baccalauréat and science courses are sufficiently high. These scholarships are awarded to those who gain a sufficient number of marks and are not on a competitive basis.

A course on the plastic surgery of the face and neck will be held from Sept. 16th to 29th under the direction of Prof. Sébileau and Prof. Dufourmentel. For details of this course application should be made to the Secretariat, Amphitheatre of Anatomy, 17, rue du Fer-à-Moulin, Paris.

The nineteenth French Medical Congress will be held from Oct. 11th to 14th, and amongst the subjects to be discussed will be septicæmias, the pathology of œdema, and the indications and therapeutic value of splenectomy. Particulars of membership may be had from Dr. M. Chiray, 14, rue Petrarque, Paris (16e).

A vacation course on the diseases of children, embodying the latest views, is to be held at the Hôpital des Enfants Malades, 149, rue de Sèvres, Paris, from July 25th to August 13th. Application for membership should be made to the Secretariat of the Faculty.

TYPHUS FEVER AT BRISTOL.

WE are indebted to Dr. P. Phillips, medical superintendent of Southmead Hospital, for the following particulars of a case reported in THE LANCET (July 2nd, p. 39):—

The patient was a woman, aged 32, a laundress at a large orphanage, and was admitted to Southmead Poor-law hospital, June 12th. On admission she was severely ill, and though able to talk could not give a definite account of her illness. Her condition might be described as a mild state of stupor, and she suffered from incontinence. There was a well-marked rash showing the three main elements usually regarded as characteristic of typhus, principally on the trunk, but also on the arms and legs. Deafness had set in since the commencement of the illness, the date of which was uncertain. Eyes, normal; cerebro-spinal fluid, normal; blood showed a leucopenia; agglutination tests (typhoid, paratyphoid A and B), negative; Weil-Felix reaction, definitely positive 1 in 125, weakly positive 1 in 250, on June 16th, and negative on June 28th.

Patient had apparently been ill for a week before admission to hospital. The temperature remained consistently high, with slight remissions, until a week after admission, when it fell to normal in 48 hours, after which she recovered rapidly. Pediculi capitis were found in small numbers; other pediculi were absent.

Contacts were watched for three weeks without result, and a careful search in the neighbourhood revealed no case resembling typhus, nor was there any history of association with persons or materials from abroad. The patient was seen by physicians experienced in the diagnosis of typhus fever, and was regarded as a doubtful case showing sufficient evidence to justify all necessary precautions being taken.

Public Health Services.

REPORTS OF SCHOOL MEDICAL OFFICERS.

COUNTY OF LONDON

THE magnitude of the work that has grown during the last 20 years in connexion with school inspection is shown in Dr. F. N. Kay Menzies's annual report for 1926. It deals with the health of over 650,000 London school-children during 1926, when 330,395 medical inspections were carried out and 258,638 children received treatment. The various sections into which the report is divided are written in vigorous style by the heads of the special branches of the service. Although great advances have been made in furthering the health and general wellbeing of the children, yet the work is still more remedial than preventive. As Dr. C. J. Thomas says in the report: "The School Service inherits children whose constitution has been already compromised." Entrants come to school with teeth just as carious as did their fathers; the proportion of entrant children with defects of the nose, throat, and ear shows little, if any, decline; enlargement of cervical glands and defective vision in young children are just as prevalent as they were years ago, and though gross rachitic deformities are now rarely seen, yet when Dr. Thomas applied Dr. G. C. M. M'Gonigle's (of Durham) criteria he found that the milder degrees of rickets can be detected in a much larger proportion of children than are reported by the medical inspectors. These small aberrations, perhaps unimportant in themselves, demonstrate the still large numbers of children whose general nutrition has been prejudicially affected long before school life begins.

Infectious Diseases.

Dr. J. A. Brincker calls attention to the practical disappearance of gastro-intestinal and insect-borne diseases such as cholera, typhoid, yellow fever and malaria, as well as small-pox. Unfortunately, preventive measures have scarcely as yet affected the incidence and severity of those diseases which are conveyed through the respiratory passages—e.g., diphtheria, measles, and whooping-cough, and those affecting the nervous system, such as cerebro-spinal fever, poliomyelitis, and encephalitis, all of which still exact a heavy toll of life and suffering among young children. He emphasises the value of active immunisation in combating the ravages of diphtheria, and states that vigorous research is being prosecuted in measles prophylaxis by the Ministry of Health in conjunction with the Medical Research Council, and he indicates the possibility of future effective anti-scarlatinal measures. The procedure of segregation at present adopted in London is outlined, with the measure of success that has attended it, but Dr. Brincker is convinced that the coöperation of the public must be secured to further these protective measures which are now being used with success in many parts of the world, and indeed in some parts of London. The experiment at Winchmore Hill for the residential care of cases of chronic encephalitis lethargica, although not producing the curative effects that were hoped for, has materially assisted in solving the problem of the disposal and treatment of such unfortunate children.

Feeble-minded Children.

Dr. F. C. Shrubsall traces the steps taken in London for dealing with feeble-minded children from the first tentative efforts in 1892—long before the work of Prof. Binet became known in England—until the present year, when 5517 children were statutorily examined for admission to mentally defective schools. He also contributes an excellent section in conjunction with Mr. Bishop Harman on measures for preventing blindness, indicates the methods adopted in London for providing higher education for myopes, and gives detailed instructions for the guidance of teachers in charge of them; lists of occupations open to and suitable for myopes are appended. The after-careers

of many children who have attended special schools have been tabulated and illustrate the excellent results of providing educational facilities for them.

Diseases of the Ear.—Rheumatism.

Mr. M. Yearsley, in his review of the special schools for the deaf, finds that the early treatment of nose and throat conditions has largely decreased the suppurative ear affections leading to deafness within the past 15 years, but cases of deafness following the non-suppurative conditions have not so decreased. Mr. A. G. Wells shows the good results of ionisation in the treatment of ear complaints. He describes a new method, known as "diastolisation," which, introduced by Dr. Gautier, of Paris, has now been used in London for treating cases of defective nasal respiration, particularly those due to hypertrophic rhinitis and the like. It consists of a to-and-fro movement of graduated hollow rubber bougies which are inflated and deflated while in the nasal canal. So far this method appears to have given good results.

Rheumatism in its various manifestations accounted for 24 per cent. of the chronic invalidity of the children, thus easily topping the list of disabling diseases. Yet it is the only widespread disease for the combating of which administrative measures are still lacking. However, a small beginning was made when the M.A.B. in November, 1926, opened 60 beds for acute rheumatism and 16 beds for subacute cases at Carshalton. The difficulty of securing cases in the acute stage is realised when we find that only 17 beds in the acute unit were filled by the end of the year, while all the subacute beds were occupied within a fortnight. An index of children suffering from subacute rheumatism was started in November, 1926, and on Feb. 25th, 1927, there were 1314 names on this list. It is obviously the insidious and protracted type of infection resulting in later cardiac involvement that specially calls for investigation and combined effort at prevention and cure.

Apart from the anthropological and optical surveys initiated by the Board of Education many original and painstaking investigations were undertaken by members of the staff. Dr. Thomas, reporting on the efficiency of the "plenum" system of ventilation in some of the older schools, quotes a letter written in 1912 from the then education adviser to the Council, Dr. W. Garnett, who with remarkable foresight suggested the existence of actinic rays which cannot penetrate glass and which might have a decided effect upon health. The efficiency of measures for safeguarding the health of the school population is exemplified by the fact that the nutritional standard of the London school-children was actually better in 1926 than it was in 1925, a remarkable result considering the widespread unemployment resulting from the industrial unrest prevalent during that year.

PORT SANITARY AUTHORITIES.

Dr. W. F. Dearden, in his twenty-first annual report to the *Manchester Port Sanitary Authority*, mentions that there was in 1926 no case of cholera, plague, or yellow fever. The number of cases of infectious disease actually dealt with at Manchester is not definitely stated, but two cases of enteric fever were taken to hospital. One case of tubercle died, one went to hospital, and three were treated on board, apparently on tramp steamers. Three cases of malaria and one of diphtheria were taken to hospital, and one case of measles in a child was treated on board a canal boat. On board ship 2344 rats were killed, 2656 ashore; 10 examined were free from plague; 26 ships were sulphur-fumigated, and the rats killed in each average 14. There were destroyed 600 tons of fruit from one cargo, ruined as the result of a single prolonged and hazardous voyage, also 10½ tons of frozen fish carried from Newfoundland as deck cargo. Besides these, 5½ tons of meat and 220 tons of other food were condemned. Among the 2102 vessels inspected, 546 (or 26 per cent.) had insanitary conditions; in 303 of these the defects were made good before sailing. There were defects in 22 per cent. of the foreign-going ships, 32 per cent. in coasting ships. The average crew appears to be one of 24 men. The most numerous defects were, forecastles requiring cleaning and painting (192), decklights, portlights, broken and defective (132), leakages into quarters (107), defects in water closets (91), in heating apparatus (39), in the water tanks (33). Of canal boats, 759 were inspected; 107 had leakages into cabins, 60 cabins were dilapidated and required repair, 42 required painting, 28 had bad or insufficient water storage, 38 were overcrowded, and in 21 the sexes were not separated.

In a letter introductory to his annual report to the *Cardiff Port Sanitary Authority*, Dr. R. M. F. Picken observes that the traffic of that year was the lowest for many years, owing to the coal strike; arrivals of vessels from May to November inclusive were about one-half the average. All vessels from foreign ports were inspected and 20 per cent. were found to have sanitary defects; two-thirds of the coasting ships were inspected and only 6 per cent. had defects. Fourteen cases of malaria came to notice, 7 of tuberculosis, 4 of pneumonia, and 1 each of diphtheria and typhoid fever; 10 other cases of tuberculosis were referred to their districts. There were no cases of cholera, plague, or yellow fever, and the hospital at Flat Holm Island, always kept in readiness, has been unused throughout the year. In all, 9159 rats and 1877 mice have been killed; none of the 266 rats examined was plague-infected. In ships were killed 2136 black, 43 brown rats; in warehouses 207 black, 50 brown. Fumigation by hydrocyanic acid has not yet been established here, though experiments detailed in this report have shown it is not deleterious to foodstuffs. Ship rats were more flea-infested than dock rats; *Ceratophyllus fasciatus* was more often found than *Xenopsylla cheopis*. Fewer fresh cases of venereal disease (the actual number was 565) appeared this year at the Seamen's clinic, but the reduction was far less than that in the tonnage entering the port. Nineteen seamen were treated at the corporation cleansing station for scabies and four for lice; the effects and quarters of the latter group were fumigated and cleansed. Bugs were reported from 101 vessels, and notices were served on the masters: vermicides were sprayed on berths, or were sent on board, for that purpose, and results were satisfactory, but sometimes the spray was used too little or not at all. None of the 291 aliens who passed through the port was refused entry. In 4473 ships inspected were found 52 dirty forecastles or bunks, 304 defective side lights or prisms, 140 had foul accumulations, 136 dirty w.c.'s, 101 verminous forecastles, 97 defective stoves. Water samples were taken from 253 vessels; 13 per cent. were bad. 1656 dirty and infected beds were destroyed. During the year there were "withheld from human consumption" 121 tons oranges, 9 tons potatoes, 51 tons wheat (only 0·03 per cent. of that imported), and 32 tons of apples. The sanitary condition of the canal boats proved satisfactory.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 9TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 185 (last week 228); scarlet fever, 1679; diphtheria, 763; enteric fever, 101; pneumonia, 777; puerperal fever, 36; puerperal pyrexia, 95; cerebro-spinal fever, 6; acute poliomyelitis, 8; encephalitis lethargica, 32; trench fever, 1; dysentery, 8; ophthalmia neonatorum, 115. There were no cases of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 8 (0) from enteric fever, 36 (1) from measles, 5 (0) from scarlet fever, 24 (2) from whooping-cough, 26 (7) from diphtheria, 38 (9) from diarrhœa and enteritis under two years, and 31 (5) from influenza. The figures in parentheses are those for London itself.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdrs. J. F. M. Campbell and R. Lyon to be Surg. Comdrs.

To be Surg. Lts.: H. J. Scott, T. S. Osborne, J. J. Keevil, and F. W. Gayford.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Lt. J. L. Cox to be Surg. Lt.

ROYAL ARMY MEDICAL CORPS.

Capt. H. R. L'Estrange, half pay list, late R.A.M.C., on completion of a period of five years on the half pay list, retires on retd. pay on account of ill-health.

Capt. F. R. S. Shaw to be Maj., and remains secd.

The undermentioned Capts. to be Majs. (Prov.): J. H. Bayley and W. J. Robertson.

R. J. Monahan to be temp. Lt.

REGULAR ARMY RESERVE OF OFFICERS.

Col. C. J. O'Gorman, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Capt. J. G. Willmore, having attained the age limit, relinquishes his commn. and retains his rank.

Maj. W. Barclay, late R.A.M.C., T.F., to be Capt., and relinquishes the rank of Maj.

Maj. W. M. Mackay, having attained the age limit, is retd., and retains his rank with permission to wear the prescribed uniform.

Lt. W. H. G. Park, late Gordons, to be Lt.

Hygiene Companies: J. L. Turpie to be Lt.

Cambridge University Contgt. (Med. Unit) Sen. Div.: 2nd Lt. D. A. O. Wilson resigns his commn.

Supernumerary for service with O.T.C.: Capt. H. P. Malcolm (late R.A.M.C., T.F.), to be Capt., and to comd. the Med. Unit, Belfast Univ. Contgt., Sen. Div., O.T.C.

Capt. W. E. Le G. Clark resigns his commn.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Maj. R. O. Ward, from Active List, to be Maj.

Capt. J. Steedman, from Active List, to be Capt.

ROYAL AIR FORCE.

J. Hill is granted a short service commission as Flying Officer for three years on the active list.

D. Loughlin (late Capt., R.A.M.C., S.R.) is granted a short service commission as Flight Lt. for three years on the active list.

Flight Lt. J. R. Crolius is promoted to the rank of Squadron Leader.

Flying Officer H. P. Sutcliffe (Temp. Capt., General List, Army, Dental Surgeon), relinquishes his temporary commission on resigning his commission in the Army.

The Duke of Connaught has appointed Col. Sir John Atkins, K.C.M.G., and Dr. Marcus Antonius Johnston De Lavis-Trafford to be Physicians in Ordinary to His Royal Highness in the room of Col. Sir Edward Scott Worthington, K.C.V.O., C.B., C.M.G., C.I.E., resigned.

Correspondence.

"Audi alteram partem."

DIET AND DIETISTS.

To the Editor of THE LANCET.

SIR,—We, the undersigned, wish to place on record our belief that the current statements that cancer, appendicitis, and many other diseases are the result of the use of white bread, are unwarranted, there being a complete absence of scientific data to justify them. Such statements are calculated to cause unjustifiable alarm in the public mind.

While we readily admit that vitamin B, which is essential to health, is present in wholemeal flour and practically absent from white flour, we do not subscribe to the statement that it is not contained in white bread, and that the use of white bread denies the human system the necessary amount of this vitamin. Not only is it difficult for a European to omit essential quantities of vitamin B from his diet, seeing that this principle is present in many other forms of food, but it is undoubtedly present in white bread also. The fact is that any lack of vitamin B in white flour is definitely remedied when the flour is made into bread by the addition of yeast, which contains plenty of it.

The importance of vitamins in the diet must not be allowed to obscure the necessity also for the requisite number of calories, which represent the energy or heat value of food so essential to all, and to manual workers in particular. Bulk for bulk, white bread yields more calories than any other form of carbohydrate food in daily use, with the possible exception of haricot beans. From economic considerations it is therefore better and cheaper for a family of limited means to continue to eat white bread rather than to change to another variety, which may or may not agree with them, and in any case would have to be consumed in larger quantities in order to give the same calorific value.

Important and frequently overlooked factors in the selection of a correct dietary are palatability and appearance. An article of diet which appeals to the eye and the palate by its appearance and flavour is more easily digested than one which is unattractive and not so well relished, even if it contains a more generous proportion of vitamins. This is a psychological aspect of digestion which has been recognised throughout the history of medicine and gastronomy, but entirely disregarded in certain recent propaganda.

One of the claims advanced in support of wholemeal bread is the fact that the bran of the wheat berry, which is excluded from white flour, provides the "roughage" stated to be essential because of its scouring effects on the intestinal tract. But most people obtain all the "roughage" they require from other foodstuffs; moreover, there are many individuals for whom this "roughage" is definitely harmful, and for whom it is a safeguard to eat white bread, which has no "roughage."

For the foregoing reasons we desire, in the public interest, to place on record that in our opinion:—

1. The case for wholemeal bread has been overstated.

2. The allegation that white bread is responsible for certain grave illnesses is not supported by scientific facts.

3. Although wholemeal bread is a good article of diet for many people, white bread of good quality is also a wholesome and nutritious food.

4. There are no good reasons for thinking that the substitution of wholemeal bread for white bread in the national diet would make for material improvement in the national health and physique.

We are, Sir, yours faithfully,

(Signed) GLADYS HARTWELL, D.Sc.,
Lecturer on Physiology, King's College for Women (Household Science Department), University of London.

THOMAS HORDER, K.C.V.O., M.D., B.Sc., F.R.C.P.,
Physician-in-Ordinary to the Prince of Wales.

S. G. MOORE, M.D., D.P.H.,
Medical Officer of Health, Huddersfield; Milroy Lecturer, 1916; Chadwick Lecturer, 1917 and 1923.

V. H. MOTTRAM, M.A.,
Professor of Physiology, University of London.

H. E. ROAF, M.D., D.Sc.,
Professor of Physiology, London Hospital Medical College, University of London.

T. B. WOOD, C.B.E., F.R.S.,
Drapers Professor of Agriculture, University of Cambridge.

To the Editor of THE LANCET.

SIR,—Sir Thomas Horder, in his recent MacAlister lecture, makes statements which are not in accordance with facts. Regarding the quantity of food, he states "there is no general consensus of opinion as to what

this requirement in calories actually is." The subject is not one about which "opinions" can exist. Calorimetry is an exact science, and the calorie requirements of individuals under various conditions, whether engaged on physical or mental work, have been accurately measured. It is unfortunate that Sir Thomas Horder is "unimpressed" by data obtained by precise methods. There is no doubt about the accuracy of the data. During the war the Royal Society issued a report upon the average calorie requirements of men and women of diverse occupations, and the practical value of these figures was proved by their successful use in the rationing of the fighting forces and of civilians. The best account of this work is given by the late Prof. E. H. Starling in the "Feeding of Nations." In everyday life such calculated economy of calories is not necessary, and the tendency is to eat rather more than is actually needed.

As to the comparative calorie values of wholemeal and white bread, both kinds give an average of about 1000 calories per pound, variations being due to differences in the water content. As to the amount of fibre, white bread has from 0·2 to 0·5 per cent., and wholemeal from 0·5 to 1·5 per cent. The difference is not great, and this small percentage of fibre cannot adversely affect normal digestion.

The question really at issue is in respect to the quantity of vitamin B in these two kinds of bread and in the diet as a whole. The addition of yeast to white flour in the baking of bread is not overlooked by scientific workers, but the point is that not enough yeast is added to compensate for the loss of vitamin B from the whole grain in milling. Ten per cent. of baker's yeast is needed to make good the loss, whilst bread, as usually baked, contains from 1 to 2 per cent. As much white flour is consumed in the form of cakes, pastry, puddings, &c., in which there is no yeast, as is consumed in the form of bread. The argument that "it is of very minor importance" as to whether we use wholemeal bread or not because "other common foods—namely, eggs, peas, beans, lentils, and nuts are very rich in this same vitamin"—is fallacious. The quantity of B-vitamin in these foods and the quantity of these foods actually consumed is disregarded by Sir Thomas Horder and others. If the quantities of these foods, which are eaten, are actually measured, it will be found that we do not eat enough of them to compensate for the absence of vitamin B from white flour, sugar, chocolate, fat, and meat.

The actual quantity of vitamin B in any foodstuff cannot yet be measured directly, but the minimum quantities of the various foodstuffs needed to supply enough vitamin B for health have been determined by Dr. Harriette Chick at the Lister Institute and also by my own experiments. I have found that the B-vitamin requirement could not be measured in terms of a daily dose, but that the supply must be proportional to the total calorie consumption. The vitamin-B value of various foodstuffs was estimated by feeding experiments upon birds and rats, and the applicability of the results to man has sometimes been questioned. We know, however, the proportion of whole barley required in the ration to prevent beri-beri in the Japanese Navy, and find that this corresponds with the requirements of birds. To provide enough vitamin B in a diet otherwise devoid of it, at least 40 per cent. must consist of wholemeal or some equivalent foodstuff, such as pulses or nuts. In most households these foods are seldom used and then only in *small* quantities. To get enough from eggs, the commonest daily foodstuff apart from cereals, it has been found that almost half the diet must consist of the yolk. Green vegetables and fruits contain very little; potatoes are better, but must be eaten in the proportion of 9 parts of potato to balance 1 part of white flour or sugar, &c.

Reviewing the average daily consumption of all the foods supplying vitamin B in the ordinary mixed diet, the total is not sufficient to balance the white flour, meat, sugar, and other foods devoid of vitamin B. The easiest and cheapest way to ensure enough is to use nothing but wholemeal flour in all bread, cakes, puddings, &c. The other alternative, if white flour is preferred, is to include some food very rich in vitamin B, such as dried yeast in an amount equal to 4 per cent. of the whole diet, or wheat germ equal to 6 per cent., or marmite equal to 10 per cent. These are the minimum quantities. It is well known that *absence* of vitamin B leads to beri-beri, which is seldom or never seen in this country. McCarrison has pointed out that the early stages in the disease are digestive and heart troubles. The symptoms found in my animals and birds on too little vitamin B were dilated heart, intestinal stasis, swollen appendices. These symptoms are more fully described in the recent and important paper by Dr. M. J. Rowlands. On the shortage of vitamin B these symptoms are chronic instead of being the early stages of beri-beri. They are the common everyday troubles from which many people suffer, and their cause is most probably from a shortage—i.e., too little—vitamin B.

This is the crux of the food question at the present time. There is no doubt that the daily food contains too little vitamin B. Do we get enough of the other vitamins? In many cases there appears to be too little vitamin A and D as evidenced by rickets. Do we get ample vitamin C? Probably most people do, as the fresh fruit and vegetable consumption is fairly large. These points are not considered in Sir Thomas Horder's lecture, but are of importance in the study of dietetics.

I am, Sir, yours faithfully,

R. H. A. PLIMMER.

St. Thomas's Hospital Medical School,
July 16th, 1927.

To the Editor of THE LANCET.

SIR,—I read with much appreciation Sir Thomas Horder's lecture on this subject in your last issue, and I congratulate him on the sanity of his views and the clearness and common sense of his expression of them.

I know of no advantage possessed by wholemeal bread over white bread except its possible "scouring" action on the mucous membrane of the colon, and even such mechanical irritation of a mucous membrane is probably a disadvantage, owing to the constancy of the irritation and interference with assimilation. On the other hand, there are two disadvantages possessed by wholemeal bread as compared with white bread which were presented in evidence given before the Departmental Committee of the Ministry of Health on the Treatment of Flour with Chemical Substances, of which committee I was a member. The reference of the Minister of Health to that committee did not convey any instruction to inquire into or report on the relative advantages or disadvantages of the various forms of bread, but incidentally evidence was given bearing on this point. One piece of evidence was to the effect that the preference for white bread among hard manual workers (which was in existence before the artificial bleaching of flour commenced) is probably due to the production after consumption of more calories per pound in the case of white bread than in that of wholemeal bread. Experiments had shown that 1250 calories were produced from a pound of white bread made with patent flour, and only 1050 calories from a pound of wholemeal bread. The main difference between the two breads is that the less digestible matter of the wholemeal flour is taken out in order to produce white bread. The other disadvantage of wholemeal bread is an economic one in that it contains 8 to 10 per cent. more moisture than white bread, so that the consumer is paying for that 8 to 10 per cent. of extra water at the price of bread. This roughly means that for every £11 paid for such bread £1 is being paid for the additional water.

I welcome Sir Thomas Horder's remarks on the question of colonic stasis as much as I deplore the campaign of propaganda in connexion with that nebulous idea.—I am, Sir, yours faithfully,

Limpsfield, July 16th, 1927. ARTHUR P. LUFF.

To the Editor of THE LANCET.

SIR,—Everyone will agree with Sir Thomas Horder in deprecating extreme or personal views in attempting to educate the layman in matters of health, nor will one grudge him his obvious enjoyment in laying out the uneducated "faddist" even though so easy a victory be deemed unworthy of so skilled a swordsman. Unhappily he has succeeded, I trust unwittingly, in conveying the very strong impression that in his opinion (and it is an opinion which carries no small weight with the public) there is no necessity for any concern as to the dietary habits of the bulk of the population.

It is common knowledge that over-eating is the prevalent dietetic fault in the class which is in a position to frequent the consulting-rooms of the West End of London. If more moderation and common sense were exercised by the well-to-do there would be little fault to find in their dietary, since the variety of their foodstuffs insures them against any serious deficiency. But they represent a mere fraction of the community. For the great bulk of the people the *integrity* of their staple foodstuffs, strictly limited as they are in quantity and variety, is of vital importance. It is no use begging the question and, having taken for granted that everyone gets a "wholesome and mixed diet," pointing out a few directions in which they may go wrong on it. The average dietary of the millions who subsist on incomes of less than £250 a year is neither wholesome nor sufficiently varied.

Sir Thomas Horder's quibble about vitamin B in white bread is unworthy of him and is utterly discredited by the majority of dietary experts. It is not, they tell us, the actual quantity of this vitamin consumed that matters, but the ratio that quantity bears to the total food taken. The amount of vitamin B in white bread is very small, and it does not serve to balance the starch consumed with it. The correct balance is to be found in nature's unspoilt product. Nor is the deficiency compensated for in the average dietary by the use of expensive eggs or by the very limited amount of lentils, peas, beans, and nuts which appear in the poor man's dietary. One would think that wholemeal bread is a novelty in human experience. It is white bread that is the innovation. If the cellulose of whole cereals is so disastrous in its effect it is surely remarkable that man has survived his machine-less past.

Sir Thomas Horder says that there are few established facts as to the connexion between diet and disease. It would be nearer the truth to say that there are few better established facts in our knowledge of the causation of disease. The public will continue to form its own ideas as to the wholesomeness of their diet until it is educated as to the real meaning of the word. Scoffing at the extremist will only serve to encourage ignorance and self-indulgence.

I am, Sir, yours faithfully,

S. HENNING BELFRAGE.

Gloucester-place, W., July 16th, 1927.

DIPHTHERIA IN LONDON.

To the Editor of THE LANCET.

SIR,—Whilst Mr. Maben recognises agreement on the published facts of diphtheria incidence and mortality in London, we differ materially as to their significance and in our respective points of view—namely, the need for prevention and the efficacy of treatment. The latter is not in question, and all reference to it was purposely avoided in the compilation of my report, the burden of which was and is prevention.

Mr. Maben's plea in mitigation of London's diphtheria record encourages an attitude of complacency in the face of evidence which cannot be ignored, however fully reliable antitoxin treatment may be, if promptly enough applied, in bringing about a decline in the case mortality.

The following facts stand out in the diphtheria records of 1925 and 1926, (1) that in England and Wales some 5500 children under the age of 15 years died of diphtheria (about 2800 under the age of 5 and 2700 between the years of 5 and 15); (2) that in the metropolitan area of London, with its population one-eighth to one-ninth that of England and Wales, over 1000 children under 15 years died of diphtheria, accounting for nearly one-fifth of the England and Wales mortality. (Of these about 600 were under 5 years and 400 between the ages of 5 and 15); (3) that in the school age-group of 5 to 15 years the number of deaths due to diphtheria alone outnumbered the combined mortality from measles, scarlet fever, and whooping-cough by over two to one.

These facts call for publicity rather than the allaying of anxiety in the desire to tone down the "degree of blackness" in London's record.

As regards the means of prevention by T.A.T. immunisation at present being made use of in London, it may be stated that, although prophylactic inoculation against diphtheria, provided in the City of Westminster and boroughs of Holborn, Camberwell, and Deptford (and in Greater London, Willesden, Tottenham, and Hornsey), is meeting with decidedly encouraging response from parents, and similar facilities have lately been made available in Battersea, these five out of the 29 metropolitan boroughs represent only about one-eighth of the London population, and there are a number of other boroughs, notable for higher diphtheria rates and greater overcrowding—e.g., Bermondsey, Bethnal Green, Shoreditch, Southwark, and Stepney, where, though more needed, no such preventive measures have yet been adopted.

I am, Sir, yours faithfully,

J. GRAHAM FORBES.

County Hall, S.E.1, July 18th, 1927.

A DISCLAIMER FROM PROF. STEINACH.

To the Editor of THE LANCET.

SIR,—A medical colleague in London has sent me a copy of an advertisement which appeared in several London journals, headed "Rejuvenation of Facial Beauty and Bodily Energy," in which the Dr. Frederick Heymann Institute misuses my name. May I, through your columns, make it clear that I have no interest in this institute and no personal acquaintance with anybody connected with it, and that I desire to protest most strongly against this unauthorised use of my name?

I am, Sir, yours faithfully,

EUGEN STEINACH.

The University, Vienna, July 7th, 1927.

THE LATE DR. JOHN PURCELL.—Dr. John Purcell, who died on July 11th in his seventy-second year, was educated at Queen's College, Cork, and Dublin, and qualified L.R.C.P. and L.R.C.S. Edin. in 1878. Some 40 years ago he settled in practice at Silsden, near Keighley, Yorkshire. He took a prominent part in the sporting life of the town, and it was largely due to his enterprise that in 1883 there was formed the Silsden Football Club of which he was president. He was also an enthusiastic member of the Craven Harriers. Dr. Purcell leaves a widow, one son, and five daughters.

TUBERCULOSIS IN CARNARVONSHIRE.—In a return made to the Carnarvonshire County Council, the medical officer of health, Dr. Parry Edwards, stated that tuberculosis accounted for 200 deaths annually in the county, and that there were approximately 900 cases of pulmonary tuberculosis on the registers of the medical officers. In some districts the death-rate showed no appreciable improvement during the last 20 years. A considerable number of the cases examined and recommended for hospital treatment did not avail themselves of the facilities offered. There were 63 unnotified cases among the deaths in 1926.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

COMPENSATION FOR IMPROVEMENTS TO PROFESSIONAL PREMISES.

DURING the discussion of the Landlord and Tenant (No. 2) Bill by Standing Committee B of the House of Commons on July 12th, the question of applying the provisions of the Bill to professional premises, and particularly to doctors' premises, was raised.

An Amendment.

Sir RICHARD LUCE moved to insert in Subsection 1 of Clause 12, after the word "business," the words "or profession." He said that he understood that the Government did not intend to oppose this amendment if there was a definite expression of opinion on the part of a considerable number of people that the provisions of the Bill should extend to professional premises. He desired to speak specially of the medical profession. There was a considerable body of opinion in that profession in favour of being included. The British Medical Association had passed a resolution to that effect without any opposition, and the Medical Practitioners' Union had done the same. There was also a considerable demand from dentists to be included, and he was glad that the Government through the Home Secretary had promised that this matter should be left to the free vote of the Committee. There was really no difference between the relation of a doctor or a dentist to his professional premises and the relation of a tradesman to his shop. A doctor depended on the premises where he did his work, and if he was turned out or lost his goodwill it was just as important to him as to a shopkeeper. A doctor might have to improve his premises for professional purposes. He often had to build a garage solely for the purpose of his practice, and in other cases he had to build premises under the direction of the Insurance Act Committee to provide suitable accommodation for his patients. Such an improvement must inevitably be of value to the house in letting it to a doctor on another occasion. Therefore it seemed to him that there was no reason why professional premises of this kind should not be added to the Bill in the same way as shops and business premises.

Mr. MACLAREN said he was sure that the Home Secretary would agree that there were certain people who might be termed professional men who would suffer severely under the strict lines of the original Bill. He therefore wished to support the amendment.

Goodwill and Compensation.

Sir P. PILDITCH said he hoped that both the Home Secretary and the Committee would be careful in giving support to this amendment, because it meant a very large extension of the Bill. The speeches made in its favour had referred mainly to doctors, but what he intended to say applied not only to doctors, but much more largely to other classes of professional men. He did not know whether the amendment would open the door to professional men getting compensation for material improvements made, or whether it would open the door to the whole question of compensation for goodwill. There was something to be said in the matter of improvements, but nothing with regard to the whole question of goodwill. The theory that it was possible for a professional man to have acquired the class of goodwill which this Bill was going to cover was absurd. The goodwill that was to be compensated for under this Bill was goodwill which remained appurtenant to the premises. Could anyone imagine that any doctor, or other professional man, could possibly have created goodwill which he could not take away with him when he left the premises? He did not think that the great extension which this amendment would bring about was justified, because it would do away with the real intention and meaning of the Bill, which was never meant to extend to private residences. They found many cases of houses in Harley-street where three or four doctors carried on their profession. The same applied to Wigmore-street, or to Finsbury-square or Finsbury-circus in the city, where there were great blocks of buildings full of doctors. Every one of them would have a claim, if this amendment were adopted, for compensation not only for improvement but also for goodwill, and they would get a set of circumstances which would make the work of the tribunal almost unthinkable.

Mr. CRAWFURD said he thought that Sir P. Pilditch had excelled himself in his speech on this amendment. He began by complaining that it would, if adopted, greatly extend the scope of the Bill. If the Bill was a good Bill why should they not extend its scope to the greatest possible numbers? Sir P. Pilditch seemed to him to have advocated a very dangerous principle. He said that the Bill was originall intended to help retail shopkeepers, and that it was a pit to extend it beyond that. What a vicious thing that wa to enunciate! Surely the Committee was not sitting t help particular classes of people, but to establish certai principles of law, and if more than one class came under th same principle surely it should be extended to those classe as well. What was the difference between the position o the professional man, such as the doctor, and the reta shopkeeper in respect to this principle?

Mr. G. JONES said that if it was right that a man wh spent money on improvements should be compensate and that a man who built up a goodwill should also b compensated, he could not see why they should not exten that principle to the professional man in the way suggeste in this amendment. They were trying to help doctors an other professional men and to prevent them from bein victimised in the way that tradesmen had been victimise in the past. Suppose a doctor built a surgery. It might b that the surgery would be quite useful for residentia purposes, and if the landlord could get the doctor ou probably he would be able to obtain an increased ren In such circumstances why should the doctor not be com pensated for the improvements he had made to the premises He hoped that the amendment would be accepted.

Mr. WOMERSLEY said that his invariable experience ha been that when a man required certain premises for profes sional purposes the owner asked more rent than he woul charge to a private resident. He had handled many suc cases, in which there had been a row of houses, and whe a doctor came along looking for premises to carry on h profession the rent had been put up against him. In thes cases the owners realised that they were at liberty to charg more rent. He contended that the doctor or the dentist ha a right to be compensated to such an extent as the tribun might decide. It had been said that a professional ma could take his goodwill away with him. Generally speakin he did not think that a doctor or a professional man cou take with him the goodwill attaching to his premises. I should support the amendment.

Sir M. MANNINGHAM-BULLER said that no definition ha been given of a profession. The profession of a doctor w one in which there was a very strong case for compensati for improvement. In regard to the question of goodwill connexion with the medical profession, an entirely ne outlook was required as to what was a doctor's goodwi Was the practice which a country doctor bought to looked upon as goodwill? If the doctor was unable to g a fresh lease was he to get compensation for what he h paid for his practice? He thought that that was a vi that some doctors were inclined to take. But if, in a count district, a landlord knew that if he let premises to a doct he might be rendered liable to pay him the whole of t amount that he paid for the practice, the doctor would fi it very difficult to get a house. If the whole of the professio were going to be embraced in the Bill consideration wou have to be given to the many different and conflicting vie as to what the goodwill of a doctor, or possibly an auction or surveyor and so on, might be. If the amendment w one to allow the payment of compensation for improveme made by such people as doctors and dentists, it would ha his support. If, however, it opened up the question of co pensation for all the various degrees and forms of goodw throughout all the varying professions, which were not e yet defined, they would very likely overload the Bill a make it unworkable. If that were to be the result of supp of the amendment he should vote against it.

The Home Secretary's Amendment.

Sir W. JOYNSON-HICKS said that he would not ask Committee to decide one way or the other on the term the amendment, but he would put his views before Committee. He thought that the amendment cle brought all professional men, both for improvements for compensation, within the scope of the Bill. That carrying the Bill considerably further than they had hitherto. Having been a professional man himself fo good many years, he thought that the type of goodwil a professional man's business, so to speak, was not the s as in a tradesman's business. He had moved from one of London to another and it had made no difference to value of his goodwill. In the Bill they were not dealing the goodwill of the tenant, but with the pecuniary advan which the landlord got at the end of the tenancy by fact that a particular trade or business had been carrie in the house in question. He did not think that the that he had carried on the profession of a lawyer or R. Luce the profession of a doctor in a particular house really going to bring many more patients or per desiring legal advice to that house after the lease was if another doctor or lawyer took it. Therefore the land would not get very much advantage from the fact that

business of a lawyer or doctor or sculptor had been carried on in the premises in question. It would be complicating the Bill very much, and would make it very much more difficult, to go into all these questions as to what the landlord had received by reason of the fact that a lawyer, doctor, or sculptor had carried on his profession in the particular premises. In regard to improvements there was more to be said for the proposal in the amendment. A doctor in premises in the country might want to put up a garage; or a panel doctor in the East End of London might think it necessary, owing to increase of business, to enlarge his surgery. He thought that that was just as much an improvement in business premises as when a tradesman desired to enlarge his shop front, and so on. As representing the Government he did not propose to take part in the division on the amendment, but he wondered if Sir R. Luce would accept a suggestion from him, and whether they could all unite to give professional men something, but perhaps not quite all, that they asked for. If the amendment were pressed to a conclusion there was likely to be a strong division of opinion, and the matter might ultimately have to go downstairs to the House to be fought over again. He wondered if they could get out of the difficulty by confining the idea underlying the amendment to the earlier part of the Bill by adding, at the end of Subsection (2 *b*), these words:—

"Provided that, so far as this part of this Act relates to improvements, premises used for carrying on a profession shall be deemed to be premises used for carrying on a trade or business."

That would go a long way to meet the views of the doctor or even the sculptor, and would be a reasonable amendment. If it were generally accepted by members who opposed altogether any extension of the Bill and by those who wanted to extend it further, he thought that it would certainly be accepted by the medical profession, and that the House of Commons would say that the Committee had come to a wise and sensible decision in the matter.

Sir G. HOHLER said that the amendment was clearly inconsistent with the language of the Bill which had already been passed. The language of Clause 4 in regard to the goodwill of a trade or business was quite inapplicable to the profession of a doctor or surgeon or solicitor or barrister. Hitherto they had only dealt with trades and business, but they were now being asked to extend it to the professions. They were now extending the Bill to every private residence, which was not the object of the measure. If the amendment were accepted the gravest difficulties would arise. A landlord would be called on to pay goodwill to a doctor. What would be the value of that goodwill to him? The landlord would never know what he had to pay.

Sir R. LUCE said that he could not quite admit that there was no goodwill in the case of the professional man. In certain circumstances there was goodwill arising out of the place itself, and quite apart from the goodwill of the doctor which had been built up by his professional ability. A doctor might settle in a place and convert a house into a place which became well known as a doctor's house. In many cases those houses went on from generation to generation. But after what the Home Secretary had said he was prepared to leave the matter in his hands entirely. On the understanding that the Home Secretary would move the amendment he had indicated, he (Sir R. LUCE) would withdraw his amendment.

Sir R. LUCE'S amendment was accordingly withdrawn.

Sir W. JOYNSON-HICKS then moved the amendment which he had outlined in his speech. He said that the wording might be a little awkward and it might be necessary later to pull the clause together a little. But, at any rate, the amendment brought a profession within the scope of the Bill. He regarded it as a compromise. He took it that the Committee would be prepared to accept it as a whole, though he did not want to force it in any way.

The amendment was agreed to.

PENSIONS ADMINISTRATION.

ON Wednesday, July 13th, the House of Commons went into Committee of Supply on a vote of £38,242,832 for the salaries and expenses of the Ministry of Pensions, Captain FITZROY, Deputy Chairman of Committees, in the chair.

Lieut.-Colonel STANLEY, Parliamentary Secretary to the Ministry of Pensions, said the total sum for which they were asking to carry on the administration of the Ministry this year was £61,442,000, which was still the largest vote submitted by any one minister. This sum represented a reduction of rather less than £2,500,000 on the estimated expenditure for the previous year, and it was the smallest reduction that had been proposed on any of the Ministry's estimates up to the present time. The largest proportionate item in the reduction was in respect of administrative expenses, which had been reduced by 10 per cent. compared with last year. On the other hand, the expenditure on benefits would be reduced by only 3½ per cent. The administrative cost of the medical services would be £298,700. The administrative expenses now only amounted to 2½ per cent. of the total vote. They were now within sight of the limit in reduction of the amount of money spent on administration compatible with the efficient working of the Ministry. The total staff of the Ministry all over the country, numbering 9130, included 2741 officers belonging to the medical services—doctors, hospital nurses, orderlies, and clerical officers engaged wholly on medical work—and it included 2486 in the local area offices of the Ministry all over the country, some of whom also were engaged on medical services. On the benefit side of the medical services the amount which they were asking for in this estimate was £2,507,500, a decrease of 8 per cent. on last year's expenditure. Nearly one half of the cost of medical treatment was due to mental cases, which remained fairly constant. The decrease over last year was due to diminishing need for hospital treatment. The vast majority of surgical cases especially had had all the treatment they needed, or could need now, but, of course, there still remained a certain number of cases where the ailments were liable to recur. For those cases it was obvious that they must still retain hospital accommodation, but the number was diminishing, though the necessity for retaining the accommodation would remain for some years to come. On the whole, the hospital population of the Ministry was declining, as it was bound to do. They calculated that this year there would be an average number of in-patients of 14,000 of all classes of cases, medical and surgical, as compared with 15,000 last year. The death-rate among disabled officers and men was slowly though very slightly becoming lower. On the other hand, the deaths among dependents had increased.

Reduction of Vote Moved.

Mr. F. O. ROBERTS (Pensions Minister in the Labour Government) moved to reduce the vote by £100. He said that with regard to the question of treatment he felt a little disquieted at the number of complaints which had reached him and other members of the Committee. They found from the estimates 9400 more patients would probably be treated by their panel doctors or private practitioners. That seemed to him to be a particularly large estimate, and one that could work very unfairly indeed, because a man, though totally incapacitated from work, might find himself deprived of any allowance at all. The Ministry had set up a staff of permanent medical officers and advisers, but if this policy, which now seemed to operate as far as treatment was concerned, was carried to its logical conclusion, it meant that ultimately every ex-Service man who claimed treatment allowance would be sent to his panel doctor or to a private practitioner, and there would be nothing left for the Ministry's doctors to do for them. He hoped that the Minister would be able to disabuse his mind of that fear. A provision was made under another head for sickness grants, and £2000 was allocated for that purpose. There were some 377,000 widows, and children of widows, and the percentage of sickness which must obtain amongst them must be fairly high. He wondered whether £2000 was a sufficient allowance to make in order to meet the legitimate requirements of those who might be affected in some particular way, and he would like to be assured that proper provision was being made so far as sickness allowance was concerned.

The Seven Years' Time-Limit.

Major COHEN said that the British Legion had been pressing the Government for some time about the seven years' time-limit, and the Minister now was able to revise cases which were brought to his notice by exercising his discretion. He thought that the right hon. gentleman did exercise his discretion on many occasions, but there was a tremendous difference between discretion exercised by a minister, however sympathetic, and a statutory right. Great Britain, so far as the time-limit was concerned, was behind other countries and the Dominions. He thought South Africa had no time-limit. Canada had a seven years' time-limit, but any record disablement through service was considered as equivalent to an application for a pension. If a man in the Canadian Army during service suffered from bronchitis and went to hospital, and if at any time during his lifetime he suffered from bronchitis arising out of it, he was entitled to put forward a claim for pension. Australia had no time-limit. France had a five years' limit, but they extended it to Dec. 31st, 1928, and they might extend it further. In regard to Germany, he could not find out whether they had a fixed time-limit or not, but he was given to understand that a man could lodge a claim within any period, and if it was turned down he had a right to go to a higher tribunal. America had extended her time-limit so far as tuberculosis cases were concerned. It was particularly in regard to tubercular cases and cases arising from gas poisoning that the British Legion pressed forward this revision. The Legion had its own home for men suffering from tuberculosis at Preston Hall, near Maidstone, and they

were there experimenting to see what was the effect of poison gas on the lungs. Such cases as those might occur well outside the seven years' limit. It seemed to him that it was particularly in cases of tuberculosis and illnesses arising out of gas poisoning that the seven years' limit was quite likely to fail. He asked the Government whether they could possibly reconsider the question of altering the limit, at any rate so far as the men he had referred to were concerned.

Difficulties in Assessing Final Awards.

Dr. DRUMMOND SHIELS said in the case of final awards for those under 20 per cent., where there was no permanent pension, the point had been made over and over again that it was impossible for any medical man, or any body of medical men, to say that in 52 weeks, or in 104 weeks, a man's condition would be such that it could be met by a certain money payment, and that thereafter the obligations of the State were ended. That was quite impossible, and they claimed that Circular 30, which they had to work at the present time, was a very difficult procedure. Another difficulty existed in connexion with these cases. A man went for treatment and he was told that his condition was such that treatment by a panel doctor was quite sufficient. The panel doctor might certify that the man was unfit for work altogether, and it seemed as if in many of these cases there was a rather mean attempt to save the allowances to which the man was entitled. They ought also to give a right to every man to a revision of his case on the certificate of a medical man. The Ministry did not show that respect to the certificates of either panel or ordinary medical practitioners which they ought to show. The Ministry would not accept, or sometimes even consider, any outside medical opinion. He did not think they had any justification for that attitude. It was quite obvious that where men since the war had suffered from malaria, bronchitis, and various other diseases, and were in a low state of health, they were more susceptible to any other illness. In their cases ordinary ailments tended to take a more serious form, and they ran much greater danger of death. Why should a rather mean discrimination be made when death was not wholly due to war disability? He had always felt that the Ministry in this matter did not realise the wishes of the British public. He felt that here, as in all these pensions regulations, the decent man was always penalised in comparison with the man who ran to the dressing station or into hospital on the slightest provocation and had therefore the best medical history sheet.

Tuberculosis and War Service.

Mr. MORRISON said that some ex-Service men who had experienced long periods of unemployment and had only a small disability pension were unable to get proper food, they developed malnutrition, and some of them finished up in a sanatorium suffering from tuberculosis of the lungs. When that happened—and he had known quite a number of these cases—they were refused a pension in respect of tuberculosis, although they might be getting a disability pension in respect of a wound. The officials of the Ministry contended that the tuberculosis had been neither caused by nor aggravated by war service. If a man who had been out of work for years because of his disability and who had been slowly starved, developed tuberculosis of the lungs, surely the Regulations of the Ministry ought to be wide enough to say that that man's disability had arisen indirectly from war service.

Major HILLS said he had quotations from letters in 232 cases, all from soldiers who had received the light metal legs. They were mostly cases of amputation below the knee, and they all expressed the very great benefit which the light metal leg had given to them. One of these soldiers said in his letter: "I wear the leg all day without pain. It is 2 lb. lighter and I do not get the heavy drag of the old wooden leg." Another soldier wrote: "All trouble ceased with the wearing of a metal leg, and I have a better pull on life. My walking efficiency has increased by 100 per cent." He (Major Hills) hoped in future that soldiers would be given a choice in all these cases and would be allowed to have the light metal limbs if they wished to have them.

Widows' Pensions.

Mr. NAYLOR said that several cases had come to his notice of widows who had been unable to claim a pension on the death of their husband because the death certificate showed that the pensioner died from a disease other than that in respect of which he received a pension. He did not want to enter into a disquisition upon the weaknesses of the medical profession, but some of them had reason to believe that doctors were not always meticulously careful when they entered their names on death certificates. He had two cases brought to his notice in which the circumstances appeared to him to be extremely doubtful. In each case, because the death certificate showed that the man had died from a disease other than that in respect of which he had been pensioned, the widow failed in her claim. It seemed to him that the Minister might exercise a little closer supervision in the matter of these certificates issued by hospital doctors. He suggested that the Minister might consider the advisability of issuing a circular asking doctors in hospitals when they had to certify the death of pensioners who had been under the care of panel doctors to consult with those doctors before signing the certificate, and to be extremely careful as to how they signed away the rights of a widow to claim a pension. The number of such cases was very large throughout the country. Many men whose physical condition had deteriorated to an extent which incapacitated them for work had told him that they had been refused the assistance they asked on being sent to a military hospital. It seemed to him that the doctors of the Ministry of Pensions who examined these men very rarely gave them the benefit of the doubt, and many a man had suffered by reason of his not getting the best possible treatment because he was unable to get treatment without getting rest from his employment. They struggled on because they could not afford to be sick. He suggested that the Minister might consider the advisability of allowing these men to go to a military hospital and secure the treatment allowance which would enable them to get well enough to resume their employment.

Discretion in Reopening Neurasthenia Cases.

Sir W. GREAVES-LORD urged that the Minister should consider the question of exercising discretion in reopening cases of neurasthenia. The difficulty of rigid regulations in matters of this kind was largely this, that medicine was not merely not an exact science, but medical men were constantly revising their standards. They were constantly finding out that their practice had been mistaken and that the origins of disease were very much further back than they thought they were. He did not think there was anything in which this was more marked than in connexion with neurasthenia. It might come on soon after circumstance which gave rise to disability; it might come on as part of a very long history, sometimes apparently disconnected and when it did come on in that way it was infinitely worse from the point of view of disabling the sufferer. He was not quarrelling with the decision, but he did bring before the Minister of Pensions recently a case where a member of the medical profession of great renown expressed the very definite view that neurasthenia quite incapacitated a person for work. In the case of a servant of the London County Council the opinion of Sir John Collie was that he was suffering from neurasthenia as a result of war service and disabilities received in war service. Yet that case was apparently one which could not be reopened. He thought where medical men themselves could not set up any exact standard, it was going very far indeed for a Government department to try to set up an exact standard for them. He hoped it might be possible, particularly in cases of neurasthenia, to exercise a wider discretion in reopening cases of that kind.

Reply of the Minister of Pensions.

After further debate,

Major TRYON said that as a matter of fact the wooden limb was lighter than the light metal limb. So far from the former limb being condemned they had medical reports from various limb-making centres bearing out the statement that the wooden limb, besides being lighter, required less repair. In any case the surgeon decided which was the best limb in each particular case. No part of the work of the Ministry had been more difficult, had received more attention or had been more desperately trying to the medical staff engaged on it, than the work of caring for mental cases and neurasthenics. He paid a visit a few weeks ago to a new modern hospital at Cobham in good surroundings. In that hospital they had about 500 neurasthenics and were doing their best for them. There was also Edenhall, near Edinburgh, with nice grounds, and there was a beautiful hospital at Erskine House on the Clyde. Close to London there were two or three very charming houses and grounds in which these men were being treated. As to the seven years' limit, he would remind the Committee that that was the unanimous decision of the House of Commons and it has been maintained by successive Governments. It was true that in some other countries a shorter period had been adopted, but experience seemed to suggest that our period was the right one. On the question of final awards he would point out that all through the demand had been for security for the ex-Service men. They did not want to be examined or go before medical boards; they wanted to be left alone. The main point was that under the system final awards over 300,000 men had secured absolute protection against any reduction of their assessment by medical boards for the rest of their lives. That was a great benefit for these men.

Progress was reported and the debate was adjourned.

HOME OFFICE AND INDUSTRIAL DISEASES.

On Thursday, July 14th, the House went into Committee of Supply on a vote of £257,647 for the salaries and expenses of the Home Office, Captain FITZROY, Deputy Chairman of Committees, in the chair.

Mr. RHYS DAVIES said there were about six million workpeople engaged, and their safety in their miscellaneous occupations was in the hands of the Home Office. There were every year nearly 1000 fatal accidents and approximately 170,000 non-fatal. Were it not for the law and the enforcement of certain regulations the figures would be more alarming. The Home Office had a factory inspectorate of 207 persons, and he wished to be assured that that staff was sufficient. Unfortunately the number of fatal and non-fatal accidents was not declining at a proper rate, and they had a right to protest against apathy of the public and of the Home Office. How far would the Home Secretary carry the propaganda in factories in favour of "Safety first"?

Mr. TINKER, in reference to the Order of July 1st in regard to the Workmen's Compensation Act, quoted the Order: "Subcutaneous cellulitis over the patella (miners' beat knee) and acute bursitis over the elbow (miners' beat elbow) is revoked, except as regards cases arising before the commencement of this Order," and said that the Home Secretary had extended it to include bursitis of the knee, but the inclusion of the word "acute" was unfortunate. A miner was on his knees most of the time, and bursitis was likely to arise. But under this Order it had to be acute before a man could get a certificate. The policy of the House was always to treat disease and illness in the first stages, yet here a miner was compelled to carry on until he was totally incapacitated. He appealed to the Home Secretary to drop out the word "acute."

Mr. HILTON said he had considerable experience of mills in Lancashire, and most of the accidents he had come across had been due to carelessness. The more fencing put round the machinery the more likelihood of accidents—speaking more especially of fast-revolving machinery where the chief accidents were from burning and friction. It had been suggested—surely not seriously—that every big mill should have a medical staff. In every large town in England they had a most up-to-date medical staff in the local infirmary on the spot to which cases could be taken and treated with scientific knowledge. They provided first-aid in every mill, and a medical man attached to every mill would be unwarrantable.

Mr. ROBINSON said that there was a committee sitting with regard to accidents and also a committee inquiring into dust and fibre. What were those committees doing? The injury from accidents was nothing compared with that from dust, where the life was taken away from a man between 30 and 40.

Dr. VERNON DAVIES said that in regard to factory regulation they had to depend largely on the honesty and goodwill of employers and their desire to do their best for their workpeople, as well as to obey the law. There were many who regarded it as a retrograde step when the inspection of accidents was taken away from the certifying surgeons. That was done by decree of the Privy Council to save £7000 per annum. Formerly accidents were reported to the certifying surgeon, who had to proceed to the mill and see the actual machine, decide between the negligence of the employer and the carelessness of the worker, and make suggestions on the spot. Now a report, possibly inaccurate, was made to the inspector, who decided whether to visit the place or not. The certifying surgeon had to go to the office and certify and never need go into the works. He would like to ask the Home Secretary what his present opinion of the certifying surgeon was. The Secretary for Mines (Colonel Lane Fox) had obtained the impression that possibly certain alterations would be carried out. That was the gist of an answer given in the House. Dr. Davies would like the Home Secretary to inquire through the department into the work of the certifying surgeon in the last few years and to compare it with the work they did formerly, and see whether one of the most efficient State services, and also one of the cheapest, was not the certifying surgeon. Any alteration in the status of the certifying surgeon was probably a retrograde step. He was at present a trained medical man with a very good knowledge of industrial processes. Every accident was reported to him, he was frequently in the mill and constantly on the look-out for errors, and he could be of the greatest use to the Home Secretary and his department. Accidents were not always the fault of the staff, or even the fault of the workmen; they were sometimes the fault of the guard that was put on the machine. The medical man was of use at a time like that. The medical man's knowledge in coöperation with the factory inspector could be a very great help. He would be glad if the Home Secretary would pay particular attention to the possibility of securing coöperation between the work of the surgeon and the factory inspector and of entrusting the inspection of accidents again to the certifying surgeon.

Mr. PALING urged that silicosis should be scheduled in connexion with the mining industry so that men suffering from this disease could obtain compensation. He said that in the opinion of doctors who had to deal with these cases coal-miners were just as liable to contract the disease as men who worked, say, in a silica mine. He also asked, in view of the alarming increase of nystagmus, that something further should be done.

Sir W. JOYNSON-HICKS said that obviously if the Home Office had more factory inspectors there would be more inspections made, but he had to balance the claims of the Treasury with the claims of perfection in administration. He was bound to ask—and they were responding gallantly to the appeal—the departmental staff of factory inspectors to work harder and harder in order to cope with the increased work without having to apply to the Treasury for an increase in the number of inspectors. When they had got through their difficulties, and when perhaps the Factory Bill of next year had passed into law, that would be the time to approach the Treasury. In accordance with the report of the Departmental Committee on Industrial Diseases no disease was scheduled by the Home Office unless it complied with certain conditions. First of all it must be a disease and not an accident within the meaning of the Act. Secondly, it must be a disease such as would disable the workman for the minimum period, not less than four days, necessary for compensation. Thirdly, it must be a disease specific to the employment, so that its causation by the employment could be determined in individual cases. He had been in consultation with the Ministry of Health, and they had agreed to institute a special investigation into cattle ringworm disease with a view to determining how far it could properly be included in the list of industrial diseases. He hoped the investigation would be completed very shortly, and then the matter would come up for final decision. Miners' nystagmus had always been scheduled. In 1908 there were 386 new cases and 74 old cases. In 1925 there were 3445 new cases and 7890 old cases. The effect was to reduce the output of the industry in which the disease occurred. After very full investigation a committee of the Medical Research Council made in 1923 a number of recommendations for improving the position. The Home Office at once drew up a scheme to give effect to those recommendations, and it was not the fault of the department that the matter had not been pressed forward. The Mining Association had furnished him with their views on the scheme, but the Miners' Federation had not yet done so. If the views of that organisation were such as commended themselves to him he hoped to have a better scheme before long for dealing with this terrible disease. As regarded bursitis, the point he had to consider was how far bursitis without inflammation was incapacitating. The Medical Research Council had dealt with the point and said:—

> "A chronic enlargement of the bursa in front of the knee or elbow should not be certified as an industrial disease unless the chronic condition becomes acutely inflamed as the result of work. Chronic enlargement of these bursæ does not cause any incapacity. The certifying surgeon must always satisfy himself that the condition is an acute inflammation arising out of the workmen's employment and of sufficient severity to cause loss of earning power."

If any medical evidence could be produced to prove that there was a bursitis which was not associated with acute inflammation, but which nevertheless disabled the worker, he was quite prepared to reconsider the position.

Dr. DAVIES: A man might have bursitis causing a certain kind of pain which would not come under the definition.

Sir W. JOYNSON-HICKS: It is no doubt very difficult for the layman to define. I did not read the whole of the report of the Medical Research Council. There is a further clause which may deal with the point raised by my hon. friend:—

> "The certifying surgeon must always satisfy himself that the condition is an acute inflammation arising out of the workman's employment and of sufficient severity to cause loss of earning power."

That is the position which I have been bound to take up, and unless hon. Members can produce medical evidence that bursitis in itself can cause not merely pain, but loss of earning power without it becoming acute, and even before it becomes acute or inflammatory, I must be bound by the medical report placed before me. Continuing, the right hon. gentleman said that the last disease with which he would deal was silicosis. That disease had not been scheduled, but he could provide compensation for it under special powers conferred by the Workmen's Compensation and Silicosis Acts. Inquiries were proceeding that might lead to the formulation of a scheme.

The vote was agreed to.

DISEASES OF ANIMALS BILL.

ON Friday, July 15th, on the motion for the third reading of the Diseases of Animals Bill,

Mr. A. V. ALEXANDER said that it was argued by the Minister of Agriculture that the Bill would help to get rid of tuberculosis in the herds of the country. While it would not be detrimental from that point of view, it would not secure anything like the amount of advantage either to the herds or to the health of the people that was desirable. The percentage of tuberculosis to be found in the herds of the country was stated to be of very varying degree according to where the statement came from. Some people said that it was as high as 70 per cent. in milch cows of from 10 to 15 years old; others said it was 30 per cent. to 40 per cent., taking dairy cattle as a whole. But they had plenty of evidence from milk tests to show that there was very real danger to the people of the country from the failure to arrest in any great degree the existence of tuberculosis in our herds. Dr. Nathan Raw had said: "It is a sad reflection on our milk-supply to know that over 15 per cent. of all milk supplied to the public contains living tubercle germs which have the power to produce disease in children and young adults."

Brigadier-General BROWN said that one reason why he welcomed the Bill was that he thought Canadian heifers coming into this country would be much more liable to get disease, especially tuberculosis, than our own heifers.

Mr. GUINNESS (Minister of Agriculture) reprobated propaganda against our own dairy cattle at a time when British agriculture was in great difficulty. It was cruel to condemn a very wholesome food and a very valuable agricultural product upon misleading evidence. The hon. Member quoted Dr. Nathan Raw as an authority for the statement that 15 per cent. of the milk in this country was tuberculous. They had got some figures as the result of 18 months' working of the Tuberculosis Order. Between Sept. 1st, 1925, and March 31st, 1927, owing to the notification of tuberculosis on dairy farmers' premises, and owing to evidence got from the other end by tuberculous milk being traced back, inspections were made of premises, including 1,051,000 cattle, a seventh or eighth of the total head of cattle in the country. Among those cattle there were 792,000 cows and heifers, and of those there were 21,871 which were found to be suffering from those forms of tuberculosis which brought them within the Order—not 15 per cent., but 2·7 per cent. No doubt the one-half of 1 per cent. which was the figure he had quoted could easily be brought up to 15 per cent. in respect of milk sold over the counter in certain unfortunate dairies. He thought that was the explanation of the terrifying but quite unfounded figure given by Mr. Alexander.

The Bill was read a third time and passed.

HOUSE OF LORDS.

MONDAY, JULY 18TH.

Midwives and Maternity Homes (Scotland) Bill.

THE Midwives and Maternity Homes (Scotland) Bill (which has already passed through the House of Commons) was read a second time.

Medical and Dentists Acts Amendment Bill.

The Medical and Dentists Acts Amendment Bill, a measure which is to confirm and give effect to certain agreements between representatives of Great Britain, the Irish Free State, and Northern Ireland as to the registration and control of medical practitioners and dentists, and to validate certain acts done by the Dental Board, was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, JULY 13TH.

Slum Clearance Schemes.

Mr. BUXTON asked the Minister of Health whether, in view of his recent statement that progress would shortly be made with the improvement of slum conditions, he would state what steps he proposed to take.—Major COPE replied: Ninety-eight schemes for the clearance of slum areas in various parts of the country have so far been confirmed, and my right hon. friend anticipates that in view of the progress which is being made generally with house building, local authorities will shortly be able to turn their attention in a greater degree to this aspect of the housing problem. As the right hon. Member is no doubt aware, local authorities already have very wide powers, and provision is made in the Housing Act of 1923 for the grant of Exchequer.

MONDAY, JULY 18TH.

Milk Consumption in Great Britain.

Major GLYN asked the Minister of Agriculture what was the estimated daily consumption of fresh and tinned milk in Great Britain, respectively; what proportion of the fresh milk was distributed by the large dairy companies; how much through the agency of coöperative retail societies; and what proportion of the daily supply was either Grade A or Certified.—Mr. GUINNESS replied: Until the results of the Scottish Agricultural Census and of the Industrial Census of Production for Dairy Produce are available, any figures as to the consumption of fresh milk in this country can only be very approximate. It is estimated, however, that the average daily consumption of fresh milk in Great Britain is probably between 2¼ and 2½ million gallons, and of imported tinned milk (used as liquid milk and for other purposes) about 6500 cwt., or the equivalent of 210,000 gallons of liquid milk. With regard to the second and third parts of the question, I understand that in the larger towns and cities from 12 to 15 individual firms, including retail coöperative societies, handle, as a rule, the bulk of the milk-supplies, but I have no precise information for the country as a whole as to the proportion handled by what my hon. and gallant friend calls "the large dairy companies" or by the "coöperative retail societies." It is estimated that "Certified" and "Grade A" milk (including tuberculin-tested milk) account for about 1 per cent. of the fresh milk consumed.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a Congregation held on July 14th the following degrees were conferred:—

M.Chir.—R. S. Corbett.

M.B. & B.Chir.—G. L. Alexander, G. M. Tanner, H. F. Griffiths, H. P. Nelson, and E. S. Page.

B.Chir.—H. S. Allen, C. F. Watts, H. M. Elliott, V. C. J. Harris, C. E. Kellett, D. N. R. Jones, and R. Watson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a quarterly meeting of the Council held on July 14th Sir Berkeley Moynihan was re-elected President, and Sir Cuthbert Wallace and Mr. F. J. Steward were re-elected Vice-Presidents for the ensuing year. Sir Cuthbert Wallace and Mr. Hugh Lett, the recently elected members of Council, were introduced and took their seats in the Council. In consequence of the redecoration of part of the museum it was decided to close it during August as well as September and, if necessary, for part of the present month. A vote of thanks was given to Lady Bland-Sutton for presenting to the College a portrait by the Hon. John Collier of Sir John Bland-Sutton, past-President of the College.

The following professors and lecturers were elected for the ensuing year:—

Hunterian Professors.—Sir Arthur Keith, Mr. Percy Sargent, Mr. G. Grey Turner, Mr. H. S. Souttar, Mr. W. E. M. Wardill, Mr. E. Miles Atkinson, and Mr. J. H. Sheldon.

Arris and Gale Lecturers.—Mr. A. Abrahams, Mr. A. Fleming, Miss Ida C. Mann.

Erasmus Wilson Lecturers.—Mr. W. D. Newcomb, Mr. C. F. Shattock, Mr. C. P. G. Wakeley.

Arnott Demonstrator.—Sir Arthur Keith.

The diploma of Fellow was conferred upon Richard A. Brews, London Hospital, and the diploma of Member was conferred upon Phyllis M. Robottom, Westminster Hospital.

The under-mentioned diplomas were conferred upon the following candidates, jointly with the Royal College of Physicians:—

Diploma in Laryngology and Otology.—M. O. Abdeen, J. L. Baird, J. Bernstein, C. H. C. Byrne, E. E. Day, E. W. Gutteridge, D. R. Macgregor, R. M. Savage, W. M. Snodgrass, G. E. Tremble, Mary A. Wiles, and W. C. Wood.

Diploma in Psychological Medicine.—S. M. Coleman, G. L. Graham, F. H. Healey, S. Hillier, E. G. Howe, W. McCartan, Doris M. Odlum, T. Paton, F. E. E. Schneider, F. L. Scott, G. N. O. Slater, and T. Tennant.

Licences in dental surgery were conferred upon the following candidates who have passed the requisite examinations and have complied with the by-laws:—

H. J. Askew, Royal Dental; R. A. Bagg, V. H. D. Bascomb, E. Britstone, and N. B. Coltart, Guy's; R. R. Dalby, Manchester; R. L. Dale and E. J. Dalling, Guy's; A. Deverall, C. T. Dodd, and S. W. Felce, Royal Dental; S. C. Gilby, Birmingham; H. A. Ginn and E. M. Greenwood, Guy's; H. L. Hill, Royal Dental; F. S. Hobbs, Guy's; A. Jackson, Royal Dental; N. A. James, Univ. Coll.; E. N. F. Jenkins, Royal Dental; H. H. Kenshole, Guy's; Margaret C. Lauder, Royal Dental; L. L. Lester and W. V. Levy, Guy's; J. Luke, Royal Dental; K. Malik, London; A. G. Mockridge, Royal Dental; M. J. O'Donnell and C. O'Donoghue, Guy's; H. Peake, Manchester; W. J. Preston, Royal Dental; R. F. Prichard and J. R. Prior, Guy's; K. P. Ramsay, Pennsylvania and Royal Dental; E. B. Redman; R. S. T. Sandberg, J. H. Sedgman, and A. F. L. Shapland, Royal Dental; S. Sharp, Guy's; J. N. Stato, Royal Dental; K. D. Sutcliffe, Leeds; E. J. Taylor, Royal Dental; D. A. Thomas, Guy's; A. Topping, Liverpool; R. T. Towne and P. R. Walter, Guy's; and J. R. William and R. C. Withers, London.

UNIVERSITY OF BELFAST.—At a graduation ceremony on July 8th the following honorary degrees were conferred :—

LL.D.—Sir Almroth Wright.

D.Sc.—Sir Berkeley Moynihan and Prof. Elliot Smith.

UNIVERSITY OF BIRMINGHAM.—At recent examinations the following candidates were successful :—

FINAL EXAMINATION FOR M.B., CH.B.

W. B. Ballenden, St. Clair H. Baynes, E. L. Butler, H. E. Carmalt, A. S. Esslemont, K. P. Fooks, Helen G. Gifford, F. E. Hampton, S. Hobson, R. L. Jones, Marjorie V. Martin (Distinction in Medicine), Marjorie H. Mills, Margaret Mitchell, Phyllis M. Paddock, Mary E. Percy, S. H. Reeves, A. H. Richardson, V. H. Sarland, Ahmad Sirry, Frances M. Stockdale, Olive F. Sydenham, A. D. Tomlins, and F. Welsh.

FINAL EXAMINATION DIPLOMA IN DENTAL SURGERY.

Old Regulations.—C. T. Morgan and A. H. Bosworth.

Revised Regulations.—S. L. Barnacle, W. H. Brown, W. L. Eccleston, Bertha H. Johnson, R. E. Morgan, Gerald Simons, and A. T. Wynne.

UNIVERSITY OF EDINBURGH.—At a graduation ceremonial held on July 14th the following degrees were conferred :—

M.D.—‡ Harriette G. Bogle, ‡ Gladys H. Dodds, * John Gray, F. S. Harper, * R. G. Inkster, † G. M. Lamb, * C. G. Lambie, F. W. Lang, † O. J. S. Macdonald, Ella G. F. MacKenzie, Rosanna E. Macmillan, ‡ A. J. Muirhead, ‡ J. R. K. Paterson, ‡ Elsie Porter, G. W. Simpson, and J. A. B. Young.

* Awarded gold medal for thesis.
† Highly commended for thesis.
‡ Commended for thesis.

Ph.D.—G. H. Percival.

M.B., Ch.B.—J. P. S. Bannerman, Norman Baxter, R. L. Beveridge, W. K. Blackie, § J. D. Bottomley, Julius Brown, T. G. Brown, J. A. Bruce, W. N. Campbell, L. G. Carmichael, D. C. Chopra, W. F. H. Coulthard, E. C. Davies, J. B. Dedman, A. W. Dunn, G. H. Duthie, A. C. Edwards, J. C. S. Edwards, Hannah M. M. Elder, Gilmour Erskine, I. B. Ewart, I. J. Freedman, Mavis E. Furst, G. W. Gale, C. O. Gange, H. P. S. Gillette, A. L. Goldberg, E. W. Graham, S. H. Graham, H. B. Gray, G. A. H. Gumley, O. K. G. Guyer, A. P. Harris, R. M. Hill, Dorothy Hunter, § J. R. Innes, W. M. Innes, § A. S. Johnstone, H. D. G. Jones, Bhagwan Das Khurana, A. L. Knipe, S. Kramer, D. G. L. Lackie, A. A. Learmont, G. A. Lee, M. E. Lemin, Mary L. Liston, Isabella M. B. Livingstone, J. W. Lusk, K. S. Macdonald-Smith, I. Bruce-Kerr MacGregor, R. M. M'Gregor, R. S. MacHardy, D. W. D. MacLaren, § Wilhelmina M. G. MacLennan, I. M. Macleod, § J. M'Michael, § A. A. MacNair, D. R. Maitland, R. S. Manson, Edith M. Martin, T. R. Matson, H. Mercer-Rickets, Brian de la Harpe Meyer, T. C. Mitchell, W. J. Mowat, C. E. Munro, Pauline V. Murray, Diwan Pitamber Nath, H. J. Nicholson, N. J. Nicholson J. H. Nicolson W. J. Officer, Beatrice M'P. Ogilvie, Katharine M. Ogilvie-Mullan, J. D. W. Pearce, W. R. Playfair, G. L. Reid, Hannah M. Reid, § T. M. Reid, § W. A. Robb, J. E. Robson, B. Rogoff, A. W. Rose, Jessie I. Rosie, W. A. R. Ross, R. Sampson, P. N. Seager, H. M. Shenkin, Aga Mohamed Hadi Shirazi, Frances E. Smith, Georgina M. Somerville, Kok Ho Teik, D. Tennant, T. P. Thomas, Margaret Venters, E. A. Watson, J. Weinstein, L. Whitten, B. Williams, C. H. Wilson, Marion R. Wilson, G. M. M. Wright, Cecilia E. L. Wyllie, G. M. Yates, A. L. Young, J. H. Young.

§ Passed with honours.

Diploma in Tropical Medicine and Hygiene.—Syed Abdur Rahman.

Diploma in Radiology.—Ruth M. C. Barclay, T. Brewis, B. T. Halliwell, and J. B. King.

The Cameron Prize in Practical Therapeutics was awarded to Dr. F. G. Banting, Professor of Medical Research in the University of Toronto, for his contributions to physiology and medicine, relating to insulin. Other prizes and distinctions were awarded as follows :—Straits Settlements Gold Medal : Dr. G. Buchanan. Ellis Prize in Physiology : M. H. Finkelstein. Gunning Victoria Jubilee Prize in Anatomy : Dr. D. Mainland. Gunning Victoria Jubilee Prize in Medicine : Dr. R. V. Christie. Lauder Brunton Prize in Pharmacology and Therapeutics : Dr. G. H. Percival. Ettles Scholarship and Leslie Gold Medal : Dr. J. M'Michael. Allan Fellowship in Clinical Medicine and Clinical Surgery : Dr. J. M'Michael. The Murchison Memorial Scholarship in Clinical Medicine : Dr. J. M'Michael. M'Cosh Graduate's and Medical Bursaries : Dr. W. A. Robb. The Mouat Scholarship in the Practice of Physic : Dr. J. D. Bottomley. Buchanan Scholarship in Gynæcology : Dr. D. G. L. Lackie. James Scott Scholarship in Midwifery : Dr. Wilhelmina M. G. MacLennan. Beaney Prize in Anatomy and Surgery : Dr. J. D. Bottomley. Conan Doyle Prize : Dr. G. W. Gale. Annandale Gold Medal in Clinical Surgery : Dr. T. M. Reid. Murdoch Brown Silver Medal in Clinical Medicine : Dr. J. M'Michael. Royal Victoria Hospital Tuberculosis Trust Gold Medal : K. S. Macdonald-Smith. Scottish Association for Medical Education of Women Prize : Dr. W. M. G. MacLennan. Dorothy Gilfillan Memorial Prize : Dr. W. M. G. MacLennan. Pattison Prize in Clinical Surgery : Dr. John M'Michael. Prox. acc., Dr. W. K. Blackie. Wightman Prize in Clinical Medicine : I. Aird. Wellcome Medals and Prizes in the History of Medicine : Gold Medal, Dr. J. D. A. Gray; Silver Medal, Dr. G. W. Gale. Cunningham Memorial Medal and Prize in Anatomy : A. C. P. Campbell. Whiteside Bruce Bursary : Thomas H. Brown.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At recent examinations the following candidates passed the Final Examination for the Diploma of L.D.S. :—

Donald Wilcock, John Stobo-Nancer, Alfred William Hendry, Stanley Leonard Cramer, Betty Cossar Hamilton, Charles Alexander Johnston, Alexander Stuart Roberts, Thomas David Hume Millar, Robert Wilson, James Rankin Wishart, David Dunnet, and Barryhill Moore.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH. A quarterly meeting of the College was held on July 12th, the President, Prof. G. M. Robertson, in the chair. Dr. Alfred Irving Shepheard-Walwyn (Carlisle) and Dr. Walter Duncanson Chambers (Perth) were introduced and took their seats as Fellows of the College. Dr. Robert Victor Morrison (Rangoon), Dr. William Macrae Taylor (Edinburgh), Dr. Douglas James Ackworth Kerr (Edinburgh), Dr. William Alister Alexander (Edinburgh), and Dr. Thomas Robert Rushton Todd (Edinburgh) were elected Fellows.

HOUSING AND TOWN-PLANNING.—The Garden Cities and Town-Planning Association is arranging a tour to Newcastle, Edinburgh, Glasgow, and Carlisle from Sept. 16th to 23rd. Particulars may be had from the Secretary, 3, Gray's Inn-place, London, W.C. 1.

MARIE CELESTE ANNEXE FOR MEN.—Last week Mr. Neville Chamberlain (Minister of Health) opened the Marie Celeste annexe at Reigate for men patients of the London Hospital. Formerly a large private house, the annexe is intended to accommodate 20 patients nearing the convalescent stage. Mr. Chamberlain said that the great advantage of annexe treatment was, taking hospital services as a whole, that it enabled a far greater use to be made of all the available services, so that better value was obtained for their money. The idea of annexes was of national importance. These 20 beds would perhaps mean the saving of thousands of lives in the future, as they would prevent people from having to wait for a bed at the London Hospital until it was too late.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Tuesday, July 26th, at 5 P.M., Mr. A. Caddy will give a lecture-demonstration on Glaucoma at the Royal Westminster Ophthalmic Hospital. This lecture-demonstration is free to all members of the medical profession. Two special courses have been arranged by the Fellowship for August—viz., a course in Diseases of Infants at the Infants Hospital under the direction of Dr. Eric Pritchard, from August 8th to 21st, from 2 P.M., daily, and a course in Medicine, Surgery, and the Specialties from August 29th to Sept. 10th at the Queen Mary's Hospital, Stratford, which will occupy almost the whole day. This hospital has a good pathological department and excellent maternity wards. Apart from these special courses, the Fellowship provides a general course of instruction at the associated hospitals. A comprehensive ticket is issued for any period from one week to one year and the holder is free to make up his own time-table. Copies of all syllabuses are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, W. 1, from whom the *Post-Graduate Medical Journal* may be had at 6*s.* per annum post free.

MEDICAL INSURANCE AGENCY.—The Chairman's report for the year 1926, presented at a recent meeting of the Agency, showed a steady progress. The year was a record one in life assurances. The Agency received in 1926, on behalf of various recommended companies, 237 proposals to secure sums assured of over £200,000. Of these 202 (£172,916) proposals were completed in the year, whilst 23 (£23,700) were declined, deferred, or were not taken up by the proposers, and 12 (£12,263) were transferred to 1927. Apart from ordinary life and endowment assurances, the Agency has arranged many contracts for the benefit of children for educational purposes and for protection in later life. The doctors' special policy for the insurance of motor-cars also showed a considerable increase in the number of new contracts negotiated. The demand for the services of the consulting engineers continues to grow, and more frequent use is being made of their services in connexion with the purchase, hire, and repair of cars and also as arbitrators. The scheme whereby medical practitioners may obtain financial assistance in the purchase of partnerships or practices is now nearing the end of the experimental period, and with the cordial coöperation of insurance experts will soon be a recognised form of business. Grants to the amount of £1911 5*s.* were made to medical charities during 1926, the total distributions to the end of that year being £16,306, divided as follows : Royal Medical Benevolent Fund, £4749 ; Royal Medical Benevolent Fund Guild, £4673 ; Epsom College, £3628 ; educational grants (girls), £1147 ; sundry charities, £2108. The committee of management resolved to make the following further distributions : R.M.B.F. and R.M.B.F. Guild, to each £525 ; Epsom College Benevolent Fund, £210 ; B.M.A. Charities Fund, £125.

DUNDEE HOSPITAL.—Dundee Royal Infirmary has received a gift of £28,000 towards the endowment of a maternity hospital.

ASSOCIATION OF SURGEONS OF GREAT BRITAIN AND IRELAND.—This association invites applications for a surgical scholarship of the value of £350 for one year. Particulars will be found in our advertisement columns.

PRESENTATION TO A MEDICAL MAN.—Dr. G. J. B. Candler-Hope, chairman of the North Riding Panel Committee since 1913, has been presented with a cheque for £100 and a gold cigarette case by the medical practitioners of the North Riding of Yorkshire.

Dr. R. King Brown, medical officer of health for Bermondsey, has been appointed medical editor of the *British Journal of Actinotherapy*. Dr. Brown is chairman of the Executive Committee of the Institute of Hygiene.

PLAGUE-INFECTED RATS.—It is stated that two grain ships recently arrived in London from the Argentine have been found to harbour rats infected with plague. Appropriate measures have been taken by the port sanitary authorities.

LEGACY FOR MEDICAL RESEARCH.—Mr. William Henry Travis, of Christchurch, New Zealand, has left the whole of his estate, valued at about £40,000, for the assistance of individuals capable of scientifically investigating the causes and cure of cancer and consumption.

IN an annotation appearing in THE LANCET of July 9th and noting the attendance of the medical profession at the 1300th anniversary of the consecration of York Minster, we omitted to mention that the Royal College of Physicians of London was represented at the function by Dr. A. G. Barrs.

KING FUAD AT ROYAL FREE HOSPITAL.—King Fuad visited the Royal Free Hospital during his recent visit to England and presented £400 for the endowment of a bed, which will bear his name. Six Egyptian women are studying medicine at the hospital with the object of developing maternity and child welfare work in their own country.

GIFTS FOR PLAYING FIELDS.—The National Playing Fields Association has announced a gift of £10,000 from the trustees of the London Parochial Charities. It will be payable in amounts of £2000 spread over five years, and is specially allocated to the London and greater London area. A cheque for £10,000 has been sent by the London Stock Fund.

MEMORIAL TO DR. STEWART HUTCHINSON.—The organisers of the memorial to the late Dr. Stewart Hutchinson of Hove have given £105 to the Royal Alexandra Hospital for Sick Children, Dyke-road, Brighton, to endow a cot during the lifetime of Mrs. Hutchinson. The balance of the fund—£41 8*s*. 6*d*.—has been forwarded to the same institution for the operating theatre fund in the hope that a tablet may be placed in the theatre.

THE LATE DR. A. BRUCE LOW.—Dr. Alexander Bruce Low, who recently died at Norwood, was born at Edinburgh in 1856, and was educated at the universities of Edinburgh and Vienna. He graduated in medicine in 1878, proceeding to the M.D. degree in 1881; three years later he became a Member of the Royal College of Physicians of Edinburgh, and in 1897 he was elected a Fellow. Soon after qualifying he was appointed house surgeon to the Sunderland Royal Infirmary, and from 1886 to 1914 was honorary physician to this institution, becoming consulting physician in 1918. He also joined the honorary staff of other hospitals in the neighbourhood. Dr. Low spent the last few years of his life in Finchley and Norwood, and his son, Dr. Herbert Bruce Low, took over the practice at Sunderland.

SCROTAL CANCER.—"Death from epithelioma caused through contact with tar" was the finding of a Manchester jury at an inquest on June 29th. The deceased had worked at the corporation gasworks for about 25 years and had had three operations for his disease. The coroner, Mr. C. W. W. Surridge, stated that it was a pity that men who were subject to cancer on the scrotum did not voluntarily submit themselves to periodical examination. Taken in time the disease was curable. Dr. S. A. Henry informed the coroner of one firm whose employees submitted themselves at varying intervals to medical examination at the firm's expense. Mr. Ryecroft said that the manager at the Manchester Corporation gasworks had given lectures to the workmen and warned them of the danger of going to the lavatory without first washing their hands. Unfortunately the men strongly resented the idea of medical examination, and until the legislature stepped in he was afraid that little progress would be made.

ENLARGEMENT OF SAVERNAKE HOSPITAL.—The opening of the extension to Savernake Hospital was performed recently by the Marchioness of Ailesbury. The main buildings are due south of the older portions of the hospital, and consist of two wings and a single open corridor. An unusual feature is the use of shop blinds along the south side of each wing, so that patients can be wheeled direct into the air from the wards under cover. A roof garden is provided on each wing.

CIVIL LIST PENSIONS.—The list of pensions granted under the Civil List Act (1910) in the year ended March 31st, 1927, has just been issued and contains the following names: Mrs. Colette Anne Marguerite Inman, in recognition of the contributions made by her husband, Arthur Conyers Inman, M.B., to the pathology of tuberculosis, £75. Dr. George Alexander Pirie, in recognition of his self-sacrificing and devoted services to the application of radiology to medicine, £75. Mr. George Chisholm Waldemar Williams, F.R.C.S., in recognition of his self-sacrificing and devoted services in the routine application of Rontgen rays to the treatment of disease, £50.

THE LATE DR. C. K. SCALES.—At the age of 32, Dr. Cedric Kennedy Scales died at Margate on July 6th. The son of a Dorking solicitor, he was educated at Epsom College and King's College Hospital. On the outbreak of war, whilst still a student, he entered the Navy as surgeon-probationer, and after taking the degree of M.B. Lond. in 1918 he left the service with the rank of surgeon-lieutenant. Following house appointments at King's College Hospital he settled in practice at Margate in partnership with Dr. J. J. Suckling, whose sister-in-law he married. A year or two ago, after a period of further hospital study, he took up a practice in Putney, but since last January illness had prevented him from continuing the work save for short periods.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, July 25th.—9 P.M., COMBINED MEETING OF THE SECTION OF NEUROLOGY WITH THE AMERICAN NEUROLOGICAL ASSOCIATION. Reception by Sir James Berry (President of the Society) and Lady Berry. At 9.30 P.M. a lecture will be delivered by Sir James Purves-Stewart (President of the Section of Neurology) on Mount Athos, a Survival of the Middle Ages. Fellows of the Society are cordially invited to be present at this reception.

TUESDAY.—9.30 A.M., Short Papers. 2 P.M., Short Papers.

WEDNESDAY.—9.30 A.M., Discussion on The Cerebellum. To be introduced by Dr. F. Tilney, Dr. H. A. Riley, Dr. L. J. Pollock, Dr. L. E. Davis, Dr. A. J. Musser, Dr. T. H. Weisenburg, and Prof. Harvey Cushing. 2.30 P.M., Clinical Meeting.

THURSDAY.—9.30 A.M., Discussion on Sensory Disorders in Organic Disease of the Nervous System. To be introduced by Prof. J. S. B. Stopford, Dr. Wilfred Harris, Dr. Gordon Holmes, and Dr. S. A. Kinnier Wilson. 2 P.M., Short papers and demonstrations of pathological subjects. 5 P.M., Hughlings Jackson Lecture by Dr. Charles L. Dana. 8 P.M., Banquet (for Members of the Section and their guests).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE and POST-GRUADUAT MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, July 25th to SATURDAY, July 30th.—FELLOWSHIP OF MEDICINE LECTURE-DEMONSTRATION. Tues., 5 P.M., Mr. A. Caddy on Glaucoma at the Royal Westminster Ophthalmic Hospital, Charing Cross, W.C. Open to all members of the medical profession without fee. WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Lecture-demonstrations, daily at 5 P.M. Last week of course.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, July 25th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M. Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinic. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, July 25th.—10 A.M., Mr. Macdonald: Genito-Urinary Operations. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.

TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 2 P.M., Mr. Addison: Operations. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—10.30 A.M., Dr. Burnford: Medical Wards. 2.30 P.M., Mr. Donald Armour: Surgical Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 2 P.M., Mr. Simmonds: Surgical Out-patients. 2 P.M., Mr. Bishop Harman: Eye Dept.
FRIDAY.—10 A.M., Sir Henry Simson: Gynæcological Operations. 10.30 A.M., Dr. Downing: Skin Dept. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.
Operations, Medical and Surgical Out-patients, Special Departments, daily, 10 A.M. to 5 P.M. Saturdays, 10 A.M. to 1 P.M.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, July 26th.—3.15 P.M., Mr. G. G. Penman: Iritis.

Appointments.

BOOTH, W. G., M.B., B.S. Lond., D.P.H., has been appointed Assistant Medical Officer of Health, Finsbury.
CLAUSEN, R. J., M.B., B.S. Lond., Anæsthetist, Charing Cross Hospital.
WILKINSON K. DOUGLAS, O.B.E., M.D. Birm., M.R.C.P. Lond., Cardiologist to the Birmingham City Fever Hospitals.

Vacancies.

For further information refer to the advertisement columns.
Alton, Hants, Lord Mayor Treloar Cripples' Hospital.—Asst. Res. M.O.
Association of Surgeons of Great Britain and Ireland, 51, Wimpole-street, W.—Surgical Scholarship. £350.
Beckenham Urban District Council.—M.O.H. and School M.O. £900.
Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. At rate of £120.
Bristol Royal Hospital for Sick Children and Women.—H.S. £125.
Charing Cross Hospital, W.C.—Res. M.O. £400.
Colchester, Essex County Hospital.—H.S. £150–£200.
Doncaster Royal Infirmary and Dispensary.—Third H.S. At rate of £150.
Irish Government.—Dist. M.O. £500.
Hertford County Hospital.—H.S. At rate of £150.
Hull Royal Infirmary.—Cas. H.S. At rate of £150.
Liverpool, Smithdown-road Institution.—Res. Asst. M.O. £200.
Manchester, Ancoats Hospital.—Res. Surg. O. £200.
Northamptonshire County Council.—Tuberculosis O. £750.
Plymouth, Homœopathic and General Hospital.—H.S. At rate of £100.
Rochford Union.—Dist. M.O. and Public Vaccinator. £170.
St. Leonards-on-Sea, The Buchanan Hospital.—H.S. £150.
St. Mary's Hospital for Women and Children, Plaistow.—Res. M.O. and Asst. Res. M.O. £175 and £130.
St. Pancras Parish, Dists. 5, 6, and 7.—Public Vaccinator.
Samaritan Free Hospital for Women.—H.S. At rate of £100.
Scottish Board of Health.—Dist. M.O. £1000.
Sheffield Royal Hospital.—Res. Surg. O. £200.
Southampton Parish Infirmary.—Third Asst. Res. M.O. £275.
Southampton, Royal South Hants and Southampton Hospital.—Sen. H.S. £200.
Staffordshire County Council, County Laboratory, Lichfield.—Bacteriologist (Locum Tenens). £10 10*s.* weekly.
Swansea Hospital.—H.S. £150.
Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.
Worcester General Infirmary.—Sen. and Jun. Res. M.O.'s. £180 and £120 respectively.
The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Roade (Northampton), Okehampton (Devon), Ludlow (Salop), Tunbridge Wells, (Kent), Liverpool (Garston), and Lancaster, Kilbirnie (Ayr).

Births, Marriages, and Deaths.

BIRTHS.

CHANDLER.—On July 13th, 1927, at 1, Park-square West, Portland-place, W.1, to Marjorie, wife of F. G. Chandler, M.D., F.R.C.P.—a daughter.
GLEN.—On July 8th, at Acton, W., the wife of Archibald Glen, L.R.C.P., M.R.C.S., of a daughter.
HOLDEN.—On July 17th, 1927, at Byron House, Aylesbury, Jean, the wife of Sandys J. C. Holden, M.B., D.P.H., of a daughter.

MARRIAGES.

DOWNING—PEGG.—On July 12th, at St. Peter's, Oadby, Frederick John Downing, L.D.S. R.C.S. Eng., to Violet Constance, daughter of Mr. and Mrs. S. H. Pegg, of Leicester.

DEATHS.

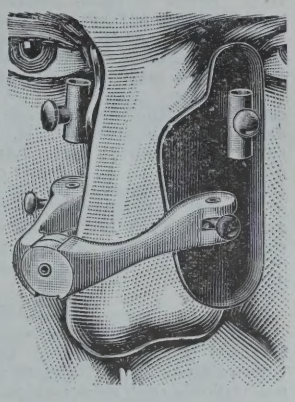
LOW.—On July 12th, suddenly, at Kewferry-road, Northwood, Middlesex, Alexander Bruce Low, M.D., F.R.C.P. Edin., aged 70.
MACKAY.—On July 14th, at Heathmount, Tain, William Alexander Mackay, M.D., F.R.C.S. Edin., of Huelva, Spain.
NIXON.—On July 15th, 1927, after an operation, Horace Clulow Nixon, M.D., of Queen's-parade, Bath.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

DIATHERMY FOR THE COMMON COLD.

IN *Paris Médical* for June 11th Dr. H. Bordier, of Lyons, describes a method of treating acute coryza by diathermy. The proposal was first made, he says, by Dr. Tsinoukas, of Athens, and the treatment aims at producing heat in the nasal fossæ sufficient to stop the excessive secretion of the mucous glands. Dr. Tsinoukas made use of two large Hegar's dilators (No. 26), applying them to the skin on each side of the nose. He claimed that even with a small current (200–300 milliampères) the most acute coryza could be stopped almost at once, so that after about 25 minutes the patient was cured; he could breathe freely, he ceased to sneeze, there was no discharge from the nose, and little by little any pain in the frontal sinuses disappeared. The best results were obtained if diathermy was used at the very beginning of the cold.



Dr. Bordier records the same success, but sought to devise more convenient apparatus. For the Hegar's dilators he first substituted spoon-shaped electrodes fixed to insulating handles; the patient comfortably seated in an armchair, held these handles for himself and applied them to the nasofacial angle. He now uses a nasal bipolar electrode (made by Mr. Lépine, place des Terreaux, Lyon), an illustration of which we reproduce by courtesy of the publishers of *Paris Médical*, Messrs. J. B. Baillière et Fils, Paris. It consists of two metal plates, 1 mm. in thickness, fixed to the arms of a V made of an insulating substance, a joint at the base permitting adjustment of the plates to any nose. A terminal on each plate receives the electric wire, which should be supple and light. Lastly, an elastic band round the head immobilises the apparatus once it is in place. The advantage of Dr. Bordier's model is that it can be used without the patient's active help. The amount of current is increased until the patient remarks a sharp sensation of heat within the nose. It is to be noted, Dr. Bordier says, that if the coryza is confined to one side of the nose, that is the side on which most heat will be felt, a fact which is explained by the higher tension of the current in the region of the diseased mucosa, following more abundant secretion from it. As the application continues with this amount of current, the sensation of heat becomes more and more painful, and current has to be diminished. Cure of the coryza is indicated when the patient finds it difficult to bear the treatment. Afterwards, Dr. Bordier states, the transformation is complete, and no symptom of the cold remains, except a nasal intonation of the voice, persisting for a few hours, and due to congestion of the nasal fossæ. In most cases a single sitting is enough to cure the cold, but the result is better and more complete if the patient submits to two or three.

If Dr. Bordier's experience should prove general, and if the treatment is not too painful, the method ought to become popular. But it is doubtful to what extent the good effects of the current can reach the posterior nares where in most cases the infection chiefly lies.

THE MEDICAL KING'S PRIZEMAN.

WITH 292 points out of a possible 300, Captain C. H. Vernon, late R.A.M.C., won the King's Cup at Bisley on Saturday last. It will be remembered that last year Dr. F. H. Kelly tied for first place, so that for the second year in succession the Prize goes to a member of the medical profession. Dr. Vernon is a Hampshire man and represented Oundle School (1910) and Cambridge University (1913–14) at Bisley. He served during the late war first in India and Mesopotamia as a combatant officer and later in the Royal Air Force Medical Service and the Royal Army Medical Corps. He graduated as M.B. at Cambridge in 1918 and became F.R.C.S. Edin. two years later. After resident appointments at St. Thomas's Hospital he settled in practice at Boscombe, and is now assistant surgeon and assistant obstetrician to the Royal Victoria and West Hants Hospital.

THE MENACE OF MENTAL DEFICIENCY.

THE Scottish Women Citizens' Associations are autonomous bodies which interest themselves in social reform of all kinds. The question of the permanent care of the feeble-minded has been prominent in their conferences for each of the last five years, and in 1924 they resolved to raise money for an industrial and farm colony. They were successful in arousing national interest and in collecting £12,000, and wisely handed this sum over to the Royal Scottish Institution at Larbert, the directors of which agreed to carry out the general policy of the associations. This is not the only practical step that these admirable bodies have achieved, for they have also done a great deal of sound propaganda work all over Scotland. In order to give the problem a more precise intellectual form, the Edinburgh Association have started a study circle at which many lectures have been delivered by experts in the care of the mentally defective. Seven of these lectures have been published by the Scottish Council of the associations, under the title of "The Menace of Mental Deficiency" (46, Great King-street, Edinburgh, 6*d.*), and it would be impossible to wish for a clearer and more accurate statement of the position from the scientific point of view. Dr. W. M. M'Alister writes on the distinction between deficiency and derangement and on sterilisation, Dr. R. D. Clarkson and Dr. F. A. E. Crew on heredity, Dr. Charles McNeil on the endocrine glands, Dr. C. G. A. Chislett on institutional treatment, and Dr. G. H. Henderson on the political and economic aspects of mental deficiency. The booklet therefore contains an all-round survey by a body of first-class authorities. It is clear that Scotland, thanks to the public spirit and energy of its women citizens, is facing the menace of mental deficiency.

"DERATISATION."

THE Manchester Port Sanitary Authority has officially adopted a word which has hitherto been a useful colloquialism in anti-plague work. A ship may be granted a certificate of "deratisation," when it is entirely free from rats—black rats, grey rats, brown rats—infected or uninfected with plague. The annual report states that 2344 rats were destroyed in the ships entering the port and 2656 about the dock premises, of the former 632 were in ships from plague-infected places.

GOAT KEEPING.

THE object of the British Goat Society is to encourage the keeping of goats, and the Year Book of the Society for 1927 contains a large amount of information for the general public, and useful to goat-keepers in particular. We learn that for the year ending October, 1926, British goats produced some 36,000 gallons of milk, a small quantity in view of the utility of such milk and of its comparative freedom from tubercle. Dr. G. H. T. Stovin contributes an article on the digestive organs of the goat, Mr. H. Stainton, F.R.C.V.S., discusses the benefits of light in the rearing of goats, and Dr. Anna L. Church describes "Some Goats I Have Known." Among other articles may be mentioned the future of goats' milk as pure food, the economies of goat keeping for poultry farming, the indirect profits from goat keeping, and an interesting account of "Shipwrecked Goats" in which Robinson Crusoe and Masterman Ready are not forgotten. The quality of goats in this country is steadily improving, largely owing to the lectures given under the auspices of the Ministry of Agriculture. The address of the Society is 10, Lloyd's-avenue, London, E.C. 3, where the Year Book can be obtained for the sum of 1*s.* 6*d.*

AN INDIAN DENTAL JOURNAL.

THE *Indian Dental Review*, of which the first number has just appeared from Karachi, is only the second dental journal to be produced in India, and has considerable significance as showing the development of dental science in that country. The absence of any organised system of dental education and of a Dentists' Register has heavily handicapped the development of dentistry in India, since proper training has only been possible for a small number of Indians who are able to go abroad for it. We are glad to note that the new *Review* lays stress on the need for an Indian Dental Association. It is inevitable that a journal serving such a country should depend largely on foreign contributions which have appeared elsewhere, but we trust it will not neglect the enormous field for investigation lying at its door. India, with its many races, living under different conditions, offers a peculiarly valuable field for investigating the natural history of dental disease. An inquiry into the incidence of caries and pyorrhœa and the dietetic and other factors which may play a part in predisposing or in conferring immunity to them would be of the utmost value, and might shed light on many perplexing problems. Here is an opportunity for the *Indian Dental Review*, and we hope it may be seized.

A LABORATORY ROBOT.

ALL laboratory workers who find themselves called upon to deal with large numbers of slides requiring to be stained in some one particular, develop some sort of wholesale technique of their own, but most of them must have wished for a machine which would pass the slides throughout the various steps without constant supervision. An apparatus to meet this need is now upon the market. The Sinclair Mills Auto-Immerser, once charged with slides, will carry them through all the stages of staining, rinsing, and draining, delivering them all ready for examination under the microscope. By various simple adjustments this apparatus can now be made to deal with slides to be stained either by the Gram, Ziehl-Nielsen, or Leishman techniques; for most other stains in ordinary use the further necessary adjustments could undoubtedly be devised. This apparatus should prove convenient to laboratory workers under the necessity of dealing with routine slides in large numbers. Particulars may be obtained from R. M. Catterson-Smith, Lacland-place, King's-road, Chelsea, London, S.W. 10.

THE LEPROSARIUM AT MAKOGAI.

MAKOGAI is an island north-east of Fiji, with an agreeable climate, set apart for the lepers of the Fiji Archipelago. Segregation is compulsory after certification by two European doctors, and cases may not leave the island until all clinical and bacteriological signs have been negative for two years. Hitherto both certification and transport have involved considerable delay, but the Government has now built a special vessel for leper transport only and Makogai is likely to become the leper station for the whole Southern Pacific. There are five villages, each belonging to a different nationality and governed by its own headman. The sexes are kept separate and there is a hospital for women, the helpless, and the sick. All who are fit are expected to work and to take their share in keeping the home and village clean and tidy. They have their own coöperative store. The staff consists of a medical and a lay superintendent, 12 European and eight native sisters, and an overseer. The European sisters pay daily visits to the villages and do minor dressings. The hospital is on the detached building system and has bath rooms, operating room, laboratory, and dispensary. Dr. F. Hall, who was medical superintendent of this institution from 1911 to 1920, in a little booklet describing its work writes that the prognosis is very hopeful for those who are treated early; the trouble is to get the native to report in time. Only 6 of the 444 cases discharged have had to be readmitted. The booklet is illustrated by a number of excellent photographs.

SMALL-POX AND VACCINATION.

Dr. W. McConnel Wanklyn has devoted his life to the study of small-pox, and his pamphlet on "The Accurate Diagnosis of Small-pox" (Ash and Co., Ltd., 6*d.*) has now reached a third edition. He has given numerous addresses and lectures on the subject since 1914 and he has recently brought out a revised model popular lecture entitled "To Whom it May Concern" (The Voluntary Service Fund, 36, Friday-street, E.C. 4, 1*s.* 6*d.*). In this he is at some pains to emphasise the serious nature of small-pox in the unvaccinated and his telling stories cannot fail to move an intelligent audience. One of the greatest dangers at the present time, as he points out, is that the public is getting the habit of under-estimating the enemy owing to its mild aspect. There are, he says, 30,000,000 people susceptible to small-pox in this country and exposed to the constant danger of infection from the disease as it reaches us from overseas. The intelligent audience can hardly fail to believe in the value of vaccination as a protective measure if performed in time, but after listening to Dr. Wanklyn's address it will almost certainly ask certain questions to which he has given no answer. First, is infantile vaccination absolutely necessary? Could not compulsory vaccination (without exemption) be carried out at school age, say, once on entering and again on leaving? Is it desirable to introduce what is popularly described as "poisonous material" into young infants under a month old? The author says on page 33, "the whole country is solid as to the value of vaccination in emergencies." Would not the postponement of infantile vaccination remove nearly all the objections to the practice? These are questions which intelligent men and women are constantly asking, and Dr. Wanklyn has, of course, got satisfactory answers to give. Why are his educative efforts concerned solely with preaching on a subject on which the "whole country is solid"? Would it not be better to deal with the situation as it exists in places where it is becoming the exception for babies to be vaccinated? Dr. Wanklyn writes well; his pamphlet is arresting in its clarity and manner of presentation, but it leaves the feeling that some of the main difficulties have been left untouched.

THE LANCET

No. 5422. LONDON, SATURDAY, JULY 30, 1927. CCXIII.

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ON THE

COÖRDINATION OF THE RESPIRATION AND CIRCULATION WITH VARIATIONS IN BODILY ACTIVITY.

Delivered before the Royal College of Physicians of London

BY C. G. DOUGLAS, C.M.G., *M.C.*, D.M. OXF., F.R.S.,
FELLOW OF ST. JOHN'S COLLEGE, OXFORD.

LECTURE I.

Delivered May 3rd, 1927.

THE basal metabolism of a man of normal average ize involves an oxygen consumption of about 40 c.cm. per minute, or about 200 c.cm., according o Pickworth's recent figures,[1] whilst the actual rate f oxygen consumption in an athlete who is performing trenuous exertion may be maintained for a time at value somewhat in excess of 4000 c.cm. per minute—hat is, some 17 to 20 times the basal figure. Between hese two extremes lie the figures which correspond to atural variations in bodily activity. The supply of xygen to the tissues, and the removal of CO_2 from hem, depend on the respiration and the circulation, nd in trying to ascertain how it is that these two ystems meet the demands of the tissues we cannot reat them as independent factors, for the one is ut the complement of the other. If I discuss the uestion of the breathing first it is only because a nsideration of the factors responsible for the general gulation of the circulation involves an extension of rguments primarily developed to account for the gulation of the breathing.

In thinking of increased bodily activity we are often ot unconsciously to restrict our attention to muscular ork of at least moderate severity, and here the companying changes in respiration and circulation rce themselves on our notice in the shape of panting nd increased pulse-rate. We perhaps forget for the oment how much the respiratory exchange and nergy output of the body may be altered by changes activity which we should ordinarily call trivial. hese changes may indeed appear trivial, and we may ot be sensible ourselves of any alterations in our reathing or circulation, yet there is no difficulty in roving by careful observation that there is in reality alteration in the metabolism of the body, however ight, without concomitant changes in the respiration nd circulation.

FACTORS INVOLVED IN REGULATION OF THE BREATHING.

The original paper of Haldane and Priestley [2] on e regulation of the breathing showed that the main ctor which determined the degree of activity of the spiratory centre was apparently the precise tension CO_2 in the arterial blood reaching it. A natural rollary to this is the proposition that the activity the respiratory centre is proportional to the mass of O_2 produced by the body and carried to the lungs, d we have therefore the fundamental conception at an exact quantitative correlation of the ventila-on of the lungs with the metabolism of the body as whole is brought about by chemical means.

An example of the delicacy with which the breathing correlated with small variations in the CO_2 produc-on in the body is afforded by some experiments made short time ago by Priestley and myself [3] in which we llowed in detail the behaviour of the breathing after e ingestion of a considerable quantity of sugar by person at complete rest. At the start of the periment the subject's metabolism was basal. ter the sugar had been swallowed the respiratory change and respiratory quotient soon began to rise, e maximum values being shown in about half an hour, after which the figures diminished gradually until the basal metabolism was resumed again after the lapse of two hours and a half. The rise of oxygen consumption was slight, that of the CO_2 output being considerably greater. The volume of air breathed per minute showed a perfectly definite rise and fall which ran closely parallel to the changes in CO_2 production, and the parallelism became still more obvious if the effective amount of air which actually reached the pulmonary alveoli was calculated as distinguished from the total amount of air breathed, some of which never penetrates to the part of the lungs in which respiratory interchange between blood and air occurs. The results of one of these experiments are given below.

Time.	Relative figures.		
	O_2 absorbed per minute.	CO_2 produced per minute.	Effective alveolar ventilation.
10.30	100	100	100
10.38	75 g. cane sugar ingested.		
11.7	112	141	143
11.37	110	130	134
12.7	107	122	127
12.38	98	103	109
1.8	100	101	99

The fact that CO_2 might be acting on the respiratory centre simply in virtue of its properties as an acid was suspected from the start; indeed, this point of view was definitely maintained by Haldane and myself in an explanation which we suggested to account for the changes in the breathing associated with severe muscular exercise to which I shall return in a moment, but the real justification for the view which is now held, that the respiratory centre is sensitive to changes in the hydrogen-ion concentration in the arterial blood, and that CO_2 only affects the centre in so far as it influences the hydrogen-ion concentration, was not obtained by Hasselbalch until 1912,[4] and this theory has been further confirmed in the resting subject by a study of the effects observed in experimental acidosis and alkalosis. In addition to this we have perfectly clear evidence, as a result of investigations on human subjects, that the ventilation of the lungs can also be definitely influenced by deficiency of oxygen as well as by changes in body temperature, though the stimulus afforded by deficiency of oxygen may be totally ineffective if the CO_2 pressure or hydrogen-ion concentration of the blood is sufficiently depressed. The study of the coördination of the respiration with changes in bodily activity demands therefore an inquiry into the effects of that activity on the hydrogen-ion concentration, the oxygen pressure, and the temperature of the arterial blood passing to the centre.

EFFECT OF SEVERE MUSCULAR WORK ON THE RESPIRATORY CENTRE.

In attempting to form an estimate of the degree to which these factors may be responsible for the hyperpnœa associated with increased bodily activity it is simplest to begin with the question of the hydrogen-ion concentration, as we know more about this than the other two factors, and to consider in the first instance what happens during severe muscular work. Here the picture is an exaggerated one, it is true, but this helps to render some of the facts the more obvious.

Assuming for the moment that the respiratory centre is affected only by changes in hydrogen-ion concentration in the blood, and that such changes are caused during muscular work solely by an increased rate of CO_2 production, we should expect that the hyperpnœa of muscular work would be accompanied by a rise in alveolar and arterial CO_2 pressure, and that on stopping the exercise the alveolar CO_2 pressure would return to its normal resting value as the hyperpnœa died down. Haldane, Priestley, and I were under the impression that this actually occurred

during light muscular work, but it was certainly not true if the work was so severe for the subject that he could only keep it up for a limited time. What Haldane and I [5] actually found in these circumstances was that when the work stopped the alveolar CO_2 pressure fell in the course of some minutes to a figure considerably below its normal resting value, and that the latter value was only slowly regained in the course of the next hour or so. The fact that the breathing continued in spite of this reduction of the alveolar CO_2 pressure below the normal resting value showed us that something else in addition to CO_2 pressure must be acting as a stimulus to the respiratory centre, and we suggested that the explanation was to be found in the fact that lactic acid was produced in the muscles during the severe exertion and escaped into the blood. This view was founded on a suggestion already made by Boycott and Haldane [6] to account for the influence of deficiency of oxygen, which they regarded as due to the formation of lactic acid in the tissues as a result of deficient oxidation. Subsequent investigations showed that the theory could not be maintained in the case of simple deficiency of oxygen, but it was justifiable in the case of severe muscular work, for, apart from older observations bearing on the subject, the original paper of Fletcher and Hopkins [7] on the production of lactic acid in isolated frog's muscles during anaerobic contraction, and its disappearance subsequently in the presence of oxygen, had been published two years previously. We regarded the respiratory centre as responding to what might be called the "total acidity" of the blood to which free CO_2 would contribute. If therefore lactic acid was present in the blood less free CO_2 would be required to stimulate the respiratory centre. During the severe exercise lactic acid would escape into the blood stream owing to the activity of the muscles outrunning the supply of oxygen furnished by the blood. The respiratory centre would therefore receive an excessive stimulus, for not only would the active muscles be supplying to the blood stream a far larger amount of CO_2 than during rest, but in addition lactic acid would be accumulating in the blood. The hyperpnœa during the exertion would consequently be excessive, with the result that some of the CO_2 normally held in the form of a dissociable combination in the blood and tissue fluids would be expelled. On resuming rest the blood would still be charged with lactic acid, and the alveolar CO_2 pressure would therefore be considerably lower than the normal resting value, but with the gradual elimination of the lactic acid from the blood the normal value would slowly be regained, CO_2 being retained in the body during this period to make good the amount expelled from dissociable combinations during the heavy muscular exertion.

THE RÔLE OF LACTIC ACID.

This view as we stated it now sounds crude, but nevertheless it was substantially correct. It must be remembered that it was put forward before Hasselbalch's work justified the strict statement that the respiratory centre responded to changes in the hydrogen-ion concentration of the blood, neither were the full facts known regarding the conditions governing the absorption of CO_2 by the blood, nor had the physicochemical factors governing the hydrogen-ion concentration in the blood been clearly defined. Support was given to the hypothesis when Ryffel [8] showed by analysis that great excess of lactic acid was present in the blood during severe muscular work and that the excess disappeared slowly after the work was over, and Miss Christiansen, Haldane, and I [9] proved that severe muscular work greatly reduced the capacity of the blood to combine with CO_2, the normal capacity being slowly regained during subsequent rest pari passu with the gradual resumption of the normal resting CO_2 pressure in the alveolar air.

Our knowledge in recent years has advanced rapidly. Far greater precision has been reached in our ideas regarding the hydrogen-ion concentration in the blood and the variations to which this is liable, while A. V. Hill,[10] Meyerhof, Embden, and their colleagues have raised an imposing superstructure on the foundations laid by Fletcher and Hopkins. As a result we now recognise that the immediate source of energy exhibited in a muscular contraction only involves the liberation of lactic acid from some carbohydrate precursor in the muscle, oxygen utilisation and CO_2 production being limited to a subsequent recovery process, in which a large proportion of the lactic acid is re-formed into the carbohydrate precursor by means of the energy derived from a secondary oxidation process. The extent to which lactic acid will accumulate in the active muscles and thence pass into the blood and other tissues of the body, should depend on the speed of the recovery process, which in its turn will be influenced by the availability of oxygen at the time.

This enables us to get a clearer idea of what happens when severe muscular work is done for a short time. During the work, owing to the blood stream being insufficient to satisfy the demands, the lactic acid formed in the anaerobic phase of muscular contraction cannot be compensated for sufficiently rapidly by oxidative recovery, and, as A. V. Hill, Long, and Lupton have clearly shown, not only does lactic acid accumulate in the tissues and blood—and in most surprising amount in violent exertions—but in addition an oxygen debt is incurred during the work which is only gradually repaid during subsequent rest when the oxygen-supply becomes adequate to ensure the oxidation of part of the lactic acid and the reconversion of the remainder into the precursor from which it came. The lactic acid as it is formed will combine with base derived from the salts of weaker acids; sodium bicarbonate may serve as the source of this, but Hartree and Hill [11] agree with Meyerhof in believing that a far more effective source may be found in the combination of sodium or potassium with proteins in the active tissues. The result of this buffering action is that the actual change in hydrogen-ion concentration, though large from the biological standpoint, is far smaller than might be anticipated from the amount of lactic acid formed.

THE PRODUCTION OF HYPERPNŒA.

In addition to the effect produced in this way by lactic acid accumulation we must remember that the greatly increased CO_2 production is also helping to raise the hydrogen-ion concentration in the blood, and it is not surprising therefore that panting should be violent in really severe muscular exertion. The accelerated removal of CO_2 from the body in consequence of the hyperpnœa tends to keep down the concentration of free CO_2 in the blood, and the net result of the interaction between lactic acid, sodium protein, and sodium bicarbonate will be, as Mrs. Christiansen, Haldane, and I proved and A. V. Hill has pointed out, that the amount of base available for combining with CO_2 as bicarbonate will be reduced. The respiration is therefore called upon not only to remove the CO_2 actually formed by the increased metabolic activity, but, in addition, to expel the CO_2 set free as the sodium bicarbonate concentration in the blood is diminished. So great may be the demands made on the respiration from this cause that during the exertion it may not be possible to meet them in full, and the violent panting continues for a time after the work stops, but the respiratory centre now quickly gets the better of the situation and the obvious hyperpnœa subsides.

We are accustomed to regard the hydrogen-ion concentration of the blood as proportional to the ratio of free CO_2 to bicarbonate. At the stage we have now reached, a short time after the work stops the blood and tissues are still loaded with lactic acid, for the oxidative removal of this lactic acid takes a long time. The bicarbonate concentration in the blood is still far below normal, and this in itself tends to keep the hydrogen-ion concentration of the blood above normal, but the hyperpnœa which is induced by this maintains the alveolar CO_2 pressure at a low level, and thus nearly compensates for the reduction of bicarbonate; a balance has, in fact, been struck with

he breathing slightly exaggerated owing to incomplete ompensation, though not appreciably to the subject. As the lactic acid is removed CO_2 is retained in the ody to combine with sodium as it becomes available ill the normal level of bicarbonate in the blood is e-established, the amount retained being the same as that expelled from combination during the muscular xertion. As the bicarbonate level rises in the blood he ventilation of the lungs diminishes pari passu and he alveolar CO_2 pressure and the concentration of ree CO_2 in the arterial blood increase, until finally, after the lapse of an hour to an hour and a half, the disturbance caused by the muscular work has disappeared and the normal resting conditions have been re-established.

EXPULSION OF CO_2 FROM THE BODY DURING SEVERE EXERCISE.

As I have said, Haldane and I tried to deduce the state of affairs from observations on the changes in the alveolar air, changes which affected the respiratory quotient as well as the gas pressures. Some years later I introduced a simple method by which continuous records of the total respiratory exchange could be obtained, and this made it possible to follow in detail the variations in the volume of air breathed, in the oxygen absorption, and in the CO_2 output, even in experiments involving severe muscular work. Using this method it was possible to verify our previous inferences—namely, that during severe muscular work, and for a short time after it stopped, there was an abnormally great expulsion of CO_2 from the body with a respiratory quotient well above 1·0. With the subject at rest after the exercise this high respiratory quotient soon fell to an abnormally low one, the actual rate of CO_2 production becoming disproportionally low as compared with the oxygen absorption, the return to normal or approximately normal values taking place gradually in the next hour and a half. Confirmatory evidence was thus obtained of the retention of CO_2 in the body after the exercise was over to compensate for the excess expelled from dissociable combinations during the work. Haldane, Vandell Henderson, Schneider, and I [12] obtained data of this type after severe muscular exertion at a high altitude to which we had become acclimatised, though it may be urged that the factor of reduced atmospheric oxygen pressure ought to be taken into account. This objection cannot, however, be maintained against the recent and extensive investigations of A. V. Hill, Long, and Lupton, which have afforded a more complete picture of the respiratory changes during and after muscular work.

HYDROGEN-ION CONCENTRATION IN THE BLOOD AND IN THE CELLS OF THE RESPIRATORY CENTRE.

I must, however, admit that a number of objections have been raised to the view I have just given. I suppose that most people will agree that what really determines the activity of the respiratory centre is the condition, say the hydrogen-ion concentration, actually prevailing at the moment within the cells themselves of that centre, a point upon which Gesell [13] has laid great stress in recent years. But though the hydrogen-ion concentration within the cells of the respiratory centre, whatever its precise value may be, no doubt determines its exact quantitative response, the question that immediately faces us is whether or not we are justified in inferring that changes in the hydrogen-ion concentration of the blood reaching that centre so alter the condition within its cells that we can account for the variations in the breathing that accompany changes in the activity of the body.

It by no means follows that the quantitative changes of hydrogen-ion concentration in the cells of the centre strictly conform in degree or in time relations with changes in the hydrogen-ion concentration of the blood with which it is supplied. Another factor comes into play, as Jacobs has shown,[14] and that is the differential rate at which CO_2 or undissociated H_2CO_3, the hydrogen-ion and anions may penetrate to the cell from the immediate environment of the tissue fluids or blood. It would seem that the extreme facility with which CO_2 can penetrate into the cell offers an explanation of the fact that not only the respiratory centre but also the vasomotor centre are stimulated on perfusion to a greater degree by solutions containing free CO_2 in solution than by solutions of the same hydrogen-ion concentration containing no free CO_2. The same explanation will account for the occurrence of hyperpnœa after the intravenous injection of sodium bicarbonate,[13] since the reaction between this substance and the blood proteins will cause the liberation of a certain amount of CO_2.

It is quite intelligible that in the early stage of severe muscular work the natural limitations of the respiratory muscles may hinder the ventilation of the lungs from mounting as high as would be anticipated from the rise of hydrogen-ion concentration, but Barr[15] has put forward a more difficult proposition, for he has shown that after moderately severe exercise of short duration, sufficient however to cause a marked reduction in the CO_2 carrying power of the blood, the breathing may diminish in spite of the fact that the hydrogen-ion concentration in the arterial blood is still high, if not increasing, as reckoned by the usual methods. I cannot help feeling that when changes are occurring so rapidly as they do after the stop of muscular work the explanation of this anomaly may be found in the differential permeability of the cells of the respiratory centre to CO_2 and other molecules or ions, on the lines suggested by Jacobs's work. The general theory of the relation of hydrogen-ion concentration to the activity of the respiratory centre is in harmony with so many facts that a negation of the hypothesis on the basis of certain apparent exceptions demands the most careful and detailed scrutiny before it can be accepted. Gesell adopts the sounder attitude in attempting to reason out from the available information what will happen within the cells of the respiratory centre when changes, and perhaps gross ones, occur in the arterial blood. In the long run the hydrogen-ion concentration within the cells of the respiratory centre should vary in the same sense as the hydrogen-ion concentration in the arterial blood, and in examining this question we might, I think, be wiser to study gentler muscular exercise, when equilibrium can be reached and maintained, rather than severe muscular exercise when we encounter rapid and great fluctuations in the physico-chemical conditions in the blood. All I can hope to do within the limits of this lecture is to indicate that when judged broadly the behaviour of the respiration during severe muscular work does in fact conform with the changes in reaction of the blood which we should infer from the modern conception of the lactic acid theory of the development of muscular energy.

EFFECT OF MODERATE MUSCULAR WORK ON THE RESPIRATORY CENTRE.

Let us now turn to the question of what happens when a person performs work which, though reasonably hard, can be kept up for a considerable time without fatigue. In this case there is certainly some accumulation of lactic acid in the blood, but the figure reached never approaches that found in very severe muscular exertion. Haldane and I, in our early work on the alveolar air changes resulting from prolonged exercise or cross-country running, found ourselves forced to the conclusion that a balance must fairly soon be struck between lactic acid production and its removal, and believed that whilst lactic acid was accumulating in the blood up to this equilibrium concentration a certain amount of CO_2 would be displaced from its combination as bicarbonate. Such a change would imply that the hyperpnœa would at first be considerable, but would decrease somewhat as the balance was attained and the excess CO_2 liberated from combination in the process was eliminated from the lungs. Pembrey and Cook's experiments [17] on "second wind" certainly pointed strongly in this direction. Campbell, Hobson, and I [18] also obtained further evidence supporting this view, which is in agreement with Pembrey's more

recent observations,[19] when we were able to show by measurements of the respiratory exchange that during long-continued and moderately hard work an unduly high respiratory quotient might be found in the early stages of the work and that CO_2 production and hyperpnœa were at a maximum at this stage, though the respiratory quotient soon fell back to a value well within the normal range and the hyperpnœa diminished distinctly, the CO_2 production being definitely reduced below its initial value. Little further change occurred during the rest of the work, and it seemed therefore that the balance had been struck between lactic acid formation and its removal. The conception of this condition of balance has been further developed by A. V. Hill and his colleagues in what they call the "steady state" of muscular exercise, and it seems clear that not only the behaviour of the breathing, but also the limited degree of oxygen debt in this form of work can be in the main explained by the lactic acid theory of the development of muscular energy and the influence of increased CO_2 production and lactic acid formation on the hydrogen-ion concentration of the blood. The state of affairs differs in degree, but not in essential nature from that found in very severe muscular work; in the latter case the oxygen requirements, as distinct from the oxygen that can be absorbed and supplied to the muscles, are so excessive that the steady state cannot be attained.

Can we assume that the same argument can be applied in quite light muscular work—say, walking at three to four miles an hour—such as we are accustomed to do in everyday life? Haldane, Priestley, and I thought that in such cases the increase of stimulus to the respiratory centre was furnished by rise of CO_2 pressure alone. In those days we were under the impression that significant amounts of lactic acid were not formed so long as the work was quite light. At the slower rates of walking alveolar air analyses seemed to show a rise of alveolar CO_2 pressure which was sometimes at least adequate to account for the increased breathing as judged from experiments in which hyperpnœa was caused by breathing air to which CO_2 had been added, though this was not the case at the faster rates of walking. These results are, however, subject to a criticism that has been made by Krogh and Lindhard,[20] who have pointed out that alveolar air analyses made by the Haldane-Priestley method must afford figures for the CO_2 pressure which are unduly high owing to the unavoidable time occupied in making the essential forced expirations, and that though this error may be negligible when at rest it becomes significant when the CO_2 production is greatly increased by muscular work. This criticism is valid, though the authors probably over-estimated the magnitude of the error, and it will be referred to again in my second lecture.

It is possible, therefore, that Haldane and I were misled as to the degree to which the alveolar CO_2 pressure rises in light muscular work. This seems to be corroborated by A. V. Hill, Long, and Lupton,[10 21] for they have found a definite though slight increase of lactic acid in the blood whilst walking at three to four miles an hour. If this is so we should expect to find the true alteration in the alveolar CO_2 pressure insufficient to account for the increased breathing, since the change in hydrogen-ion concentration in the blood would be in part attributable to the effects of lactic acid. As we cannot place implicit confidence in analyses of the alveolar air alone, Mr. W. H. Owles and I have tried to confirm the results of the lactic acid analyses by direct estimations of the bicarbonate in the blood. After sitting at rest for an hour in the laboratory in the post-absorptive condition we withdrew a sample of blood from a vein in the arm and subsequently took another sample after we had walked for half an hour at a pace of three or three and a half miles an hour. Coagulation was prevented by adding oxalate and formation of lactic acid owing to glycolysis was hindered by the addition of sodium fluoride (Evans [22]). Both samples were then brought into equilibrium with air containing the same concentration of CO_2 at 38° C., the content of CO_2 combined in the blood as bicarbonate being then analysed. In two experiments we found the following results:—

Experiment.	Pace in miles per hour.	CO_2 pressure in mm. Hg with which blood was equilibrated.	C.cm. combined CO_2 per 100 c.cm. blood.
1	2·9	39·9	46·8 (B)
		40·0	47·2 (A)
2	3·4	38·9	45·4 (B)
		38·9	46·6 (A)

(B) = Before exercise. (A) = After exercise.

It will be seen that the exercise caused no fall in the CO_2 combining power of the blood; indeed, there seems to have been a slight increase. In view of this result I feel that I should like further information before committing myself to any definite view regarding the precise physicochemical changes which accompany the small increase of hydrogen-ion concentration in the blood during gentle exercise.

INFLUENCE OF FACTORS OTHER THAN HYDROGEN-ION CONCENTRATION.

The influence of the other two factors which must be taken into account during muscular work is less easy to define. The fact that as one ascends from sea level to a high altitude the breathing progressively increases and the alveolar CO_2 pressure progressively falls in the resting subject, effects which are known to be attributable to the decreased atmospheric oxygen pressure, seems to imply that we must regard the respiratory centre as being influenced all the time not only by the hydrogen-ion concentration in the arterial blood, but by the oxygen pressure as well. Provided that the arterial oxygen pressure can be kept up to its normal value during muscular work no difficulty will arise. Muscular work, however, leads to a great increase in the rate at which blood traverses the lungs and to a great reduction in the oxygen saturation of the venous blood entering the lungs, and as the distribution of oxygen in the different alveoli seems to be by no means even, some parts of the lung being at any moment less adequately ventilated than others, we may well believe that it will be difficult for the blood to get completely saturated with oxygen in its passage. If so, the effect of deficiency of oxygen will make itself felt on the respiratory centre and will exaggerate the hyperpnœa. Various observations show that we have to reckon with this effect. The benefit which has been recorded in the past as resulting from breathing oxygen during arduous work favours this view, and quantitative evidence has been furnished by the experiments of A. V. Hill, Long, and Lupton which have led them to agree that some degree of reduction of the oxygen saturation in the arterial blood during very severe work is responsible for prejudicial effects on the cerebral and cardiac system which set a limit to the amount of oxygen that can be absorbed when breathing air, a limit which can be readily passed when the subject breathes an oxygen-rich atmosphere. Deficiency in the saturation of the arterial blood with oxygen is therefore a real factor during severe work, but as yet there are insufficient data to indicate how hard the work must be for this deficiency to become significant, though this does seem to depend definitely on the physical fitness and training of the subject. Information is badly needed on this point, and it is particularly desirable that trials should be made with both trained and untrained subjects.

Deficiency of oxygen in the arterial blood will excite the respiratory centre and therefore increase the hyperpnœa, but the increased elimination of CO_2 in consequence of this will, by reducing the hydrogen-ion concentration of the blood, oppose this action, and a balance may therefore be struck with the hyperpnœa somewhat greater and the hydrogen-ion concentration somewhat lower than would otherwise be the case. As, however, increased rate of breathing caused by deficiency of oxygen tends to be accom-

panied by shallowness of respiration the ventilation of the lungs may be less effective than one would anticipate.

Difficult though it may be to define clearly the influence of deficiency of oxygen during muscular work our knowledge as to the possible effects on the respiration of changes of body temperature resulting from increased metabolism is even vaguer. An increase of body temperature in a normal resting person caused by exposure to an unduly high environmental temperature results in hyperpnœa in excess of what would be expected from the increased metabolism due to the high body temperature and a fall in alveolar CO_2 pressure, an effect that appears to be attributable to the fact that blood of abnormally high temperature reaches the respiratory centre. As is well known the body temperature, as judged by the readings of rectal thermometers, is increased by muscular work, but this fact need not necessarily imply that the temperature of the blood reaching the brain is above normal since the warm blood returning from the active parts of the body will be mixed in the heart with relatively cool blood coming back from the skin. If, as seems probable, the general regulation of heat production and heat loss so as to preserve the body temperature within due bounds is largely dependent on the effects exerted by slight changes of blood temperature on some centre in the brain, situated perhaps in the thalamic region, the fact that heat loss is increased by vascular changes in the skin and by sweating during muscular work may well be an indication that the temperature of the blood reaching the brain is higher than it is at rest. I have several times thought that I could detect some increase of the hyperpnœa during muscular work, as well as alterations of the alveolar CO_2 pressure after the work, which were attributable to a rise of temperature. In any case if the temperature factor does actually come into play its influence on the respiratory centre will resemble that of deficiency of oxygen, and like that it will tend to be opposed by the reduction of hydrogen-ion concentration which will result from the accentuation of the hyperpnœa.

THE NERVOUS FACTOR IN COÖRDINATION OF BREATHING WITH CHANGES IN BODILY ACTIVITY.

I have now devoted a great deal of time to a discussion of the influence on the breathing of changes in the arterial blood, and beyond casual reference to the respiratory centre I have apparently treated the part played by the nervous system itself with scant courtesy. In point of fact what I have really done is to assume the function of the nervous system. After all, when we are considering the coördination of the breathing with changes in bodily activity we are, if I may put it in that way, dealing with a reflex arc in which the efferent side has been in the main replaced by direct excitation of the effector nervous centre by chemical and physical stimuli reaching it through the blood stream. From that limited region of the brain that we call the respiratory centre the passage of efferent nervous impulses ensures the simultaneous and coördinated activity of all the respiratory muscles; it is impossible to conceive that this object could be attained if those muscles, distributed as they are over a wide region of the body, were individually and directly influenced by variations in the composition of the blood which reached them. Then what is the peculiar advantage of the direct physicochemical stimulus to the centre?

It is clear that if the breathing is to conform with changes in the metabolism the pace must somehow be set by the organs whose activity varies. Haldane and Priestley showed that the connecting link was apparently supplied by the direct influence of CO_2, the principle end-product of tissue metabolism, on the respiratory centre, transmission of the requisite stimulus taking place through the blood stream and not through afferent nerves. For CO_2 pressure in the blood we may now have substituted hydrogen-ion concentration, and we may have added to that such factors as deficiency of oxygen and even body temperature, and yet the fundamental conception holds good. Provided that alterations in the activity of the organs of the body impress on the blood stream certain types of chemical or physical change to which, as has been abundantly shown by experimental investigation, the respiratory centre is exquisitely sensitive, the quantity of air breathed must of necessity be correlated with the varying metabolism of the body. The coördination of the respiration is intimately bound up with the preservation of the hydrogen-ion concentration in the blood and tissues within certain narrow limits. As muscular work increases in severity lactic acid may play a more and more prominent part in raising the hydrogen-ion concentration, and the effects of deficiency of oxygen and rise of temperature may be superadded, but the very fact that increased breathing by eliminating CO_2 at a faster rate tends to reduce the hydrogen-ion concentration and so to counteract the influence of these factors ensures that a balance will be struck so long as the metabolism is within reasonable bounds, a balance which implies on the one hand that the hydrogen-ion concentration will not rise unduly, and on the other that the CO_2 produced by the active tissues will be effectively expelled—and appropriate expulsion of CO_2 means the maintenance of an adequate oxygen concentration in the lungs. The balance is only unattainable in the severer forms of exertion when the limits of respiratory and cardiac activity are reached while the muscles can still continue in functional activity in consequence of their capacity for the anaerobic development of energy.

While, however, we may recognise that the main stimulus to the respiratory centre is afforded by chemical or physical alterations in the blood with which it is supplied we must be careful not to forget that that centre is also played upon by impulses conveyed by nervous channels. I am referring neither to the reflex effects on the respiration which we encounter every time we cough, sneeze, or swallow, nor to the temporary alterations which result from certain forms of cutaneous stimulation or pain. What I have in mind is the constant influence exerted by afferent impulses passing up the vagus nerves from the lungs themselves. If these nerves are severed increase of the chemical stimulus still provokes an increase in the breathing, but the response of the respiratory centre is not as complete as it is normally, for though the breathing may increase in depth there may be but an inadequate change in rate. The actual conversion of the inspiratory phase of the breathing into the expiratory phase and vice versa as breath follows breath is largely determined by the passage of nervous impulses up the vagus nerves, which are initiated by inflation or deflation of the lungs, the moment at which this conversion shall become effective being dependent on the magnitude of the chemical stimulus at the time and the vigour with which the respiratory centre is acting in consequence.[18] The effect of these impulses is apparently to convert the natural rhythm of response of the respiratory centre to the existing chemical stimulus, with its uneconomical prolongation of the inspiratory and, perhaps, of the expiratory phases, into a rhythm which is not only more economical of energy when the breathing is quiet, but also permits of far greater latitude when the breathing is exaggerated, for the very fact that the vagal impulses induce the prompt conversion of the one phase of a breathing movement into the other means that when the stress comes it can be met by an increase of both depth and frequency of the breathing. This reflex influence exerted through the vagus nerves is accentuated by various factors, but from our present standpoint the most important of these is deficiency of oxygen. The hyperpnœa caused by breathing air containing an excess of CO_2 (simple effect of increased hydrogen-ion concentration) involves as a rule a far greater alteration in the depth of the breathing than in the rate, while mere depression of the oxygen concentration in the air breathed provokes an increase in the rate of the breathing rather than in the depth, and we can well

understand that maximum hyperpnœa is found under experimental conditions when the two stimuli are combined.

When we consider the means by which the different functions of the body are coördinated we are apt, according to our bias, to lay stress either on the part played by the nervous system or on some factor, chemical or physicochemical, transmitted through the blood stream. In part this depends on our point of view at the moment, but in favouring one aspect we are in danger of neglecting the other. If we reflect on the behaviour of the breathing under different conditions of rest and activity we cannot fail to appreciate, I think, the harmonious coöperation of the two methods. Each has its own peculiar sphere; there is no antagonism but only mutual assistance. The quantitative response of the respiratory centre which manifests itself in alterations of the volume of air entering and leaving the lungs is primarily to be attributed to the direct stimulus afforded by physicochemical changes in the arterial blood which reaches it, changes which are directly due to the varying metabolism of the different organs of the body. But this response can only attain its full value when its rhythm is influenced by impulses transmitted up the vagus nerves as the lungs vary in volume, while the coördinated activity of the inspiratory and expiratory muscles is ensured by their nervous connexion with the respiratory centre.

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BELFAST CHILDREN'S HOSPITAL.—Mrs. Harold Barbour, wife of the Minister of Commerce in the Northern Parliament, has offered to subscribe £10,000 to the fund for the erection of a new children's hospital at Belfast. The new hospital will cost approximately £100,000, of which £25,000 is required for the out-patient department. It is proposed, however, to postpone the rebuilding of this department for a short time.

THE LATE DR. M. S. W. GUNNING.—The death is announced of Dr. Montague Shirley Wyatt Gunning, of Sheffield. Born in London in 1864, he was the son of Thomas Wyatt Gunning, barrister-at-law, and was educated at Christ Church, Oxford, and at University College Hospital. He took the Scottish triple diploma in 1888, and served for a time as ship's surgeon in the P. and O. On taking up general practice he worked at Montrose and later at Marborough, near Leicester, and from 1904 to 1909 he was assistant ophthalmic surgeon to the Leicester Infirmary. For the last ten years of his life he was county oculist to the Derbyshire Education Committee, and practised as an oculist at Sheffield. Dr. Gunning was an experienced entomologist, and was interested in many other branches of natural history, as well as in music. For some years before the war he held a captain's commission, serving with the 2nd North Midland Field Hospital. His wife died some months before him, and he leaves one son.

DIET AND ACCESSORY FOOD FACTORS

IN RELATION TO PREVENTION OF DISEASES OF THE TEETH.*

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ALL are, I hope, familiar with the debt the dental profession owes to the late Prof. G. V. Black. It is, however, only his epoch-making "Investigation into the Chemical and Physical Characters of the Teeth" to which I would here refer, in which he showed that the molar teeth were more fully calcified than the incisors by about 2 per cent., though molars are from 6 to 30 times more subject to decay than the different incisors. The accuracy of this analysis was confirmed by Sir Charles Tomes in England, and Black concluded that—

"neither the density nor the percentage of lime salts, nor the strength, is in any degree a factor in predisposing the teeth to caries, or in hindering its inception or progress."

In another way Tomes further confirmed Black's findings. He analysed two sets of teeth to ascertain the percentage of salts.

"In one set the third molars were largely affected by caries, and incipient decay existed between many of the teeth; while in the other set, although much worn by attrition, the teeth were quite free from caries. The analysis gave 71·4 per cent. of salts in both cases."

Yet, even to the present day, theories are brought forward to explain why the teeth are not sufficiently or properly calcified, and these quite erroneous theories with regard to calcification have been used to explain the fundamental cause of dental caries! In view of the verified facts, could anything be a greater or more misleading waste of time?

STRUCTURE OF THE ENAMEL.

Let me now refer to the microscopic structure of the enamel. Leon Williams, in his unexcelled research on the pathology of enamel, showed that defects in structure "such as pits, grooves, fissures, pigmentations, granular and amorphous enamel, are common in the lower animals," whose teeth we know are practically free from caries. Moreover, with the aid of the finest lenses, and the highest magnification added to his own almost inimitable skill and care in the preparation of sections, he was unable to discover any difference or degenerative change in the microscopic structure of the enamel of the teeth of modern civilised man, as compared with that of his remote ancestors of thousands of years ago. He noted, too, that, in his judgment, "the more imperfectly formed teeth—so far as inherent structure was concerned—and he meant by that the proportion of lime salts which were contained or anything other than the grosser defects, such as were found in enamel, in a perfectly healthy mouth, would never decay, while in an unhealthy mouth—and by unhealthy he meant those conditions inimical to the preservation of the teeth—in such an unhealthy mouth the most perfectly formed tooth would never be able to resist decay." Of course, we dentists are all familiar with the obvious, we all frequently see hypoplastic teeth which have not decayed throughout a lifetime while we see the most perfect teeth gradually becoming ravaged by the disease. Indeed, in one and the same mouth we often see hypoplastic incisors persisting in not becoming carious, while the premolars and second molars, though perfectly formed and free from hypoplasia, succumb to decay.

CHEMICAL COMPOSITION OF THE ENAMEL.

Now let us consider the enamel from the chemical point of view. It has long been known that it contains

* A review of recent medical and dental research, delivered at the Academy of Medicine, New York, and at other cities in U.S.A. and Canada on a lecturing tour primarily organised by the California State Dental Association.

ittle or no organic matter. With the best technique hat science can devise, however, it is estimated that namel contains 1 per cent. of organic matter. Now what and where is this "organic matter" in the namel? According to Dr. Leon Williams and Mr. H. C. Mallison, it is to be found in the cuticle surrounding the enamel prism, and with regard to its hemical nature we are indebted to Prof. W. E. Geis for the information that it is a sclero-protein like Naismith's membrane, with which it is continuous before that membrane gets stripped from the surface of the enamel. According to Prof. Geis and Dr. Leon Williams this sclero-protein is possessed of considerable elasticity, and this might well be regarded as a sufficient explanation of its use. Nevertheless, his trace of organic matter intrigues some investigators. They assume that it possesses some mysterious vitality. Some even claim that the highly complex phenomena associated with immunity in the blood may be possessed by this 1 per cent. of organic matter which is firmly imbedded in the inorganic enamel. They appear to assume that antibodies presumably blessed with the power of exerting a specific restrictive or destructive action on the bacteria in the fermenting carbohydrates outside the tooth, are exuded from this sclero-protein! and this, notwithstanding the fact that in the earliest stages of caries it is just this part of the enamel, containing a trace of organic matter, which appears to facilitate the diffusion of acid through the enamel and allow of the decalcification of the interprismatic substance. The theory of immunity as exhibited in the blood with regard to bacteria is rational, no doubt, but the theory of immunity in enamel to the action of acid is not worthy of the dental profession.

THE DENTINE IN RELATION TO IMMUNITY.

We know that dentine is a hard substance chiefly of a calcareous nature, subject, like enamel, to decalcification by acid. We know definitely that it contains living organic matter in the dentinal tubules. But what does this undoubted organic matter do when the acids and bacteria associated with the carious process break through the enamel? Does it exhibit the phenomena associated with immunity? Most assuredly it does not. It is presumed, and no doubt correctly, that the translucent zone indicates a vital reaction, but it seems to have remarkably little effect in preventing the progress of decay. Indeed, we *know* that instead of resisting their onslaught the dentinal fibrils furnish invading bacteria with relatively favourable channels for the destruction of the dentine. If we know that the 28 per cent. of organic matter in the dentine does more harm than good with regard to resistance to the carious process, may it not be that the less we talk nonsense about the immunity of enamel the better?

THE RÔLE OF ACCESSORY FOOD FACTORS IN THE PREVENTION OF CARIES.

In my early investigations it became evident that there were several accessory food factors of great importance from the point of view of the prevention of caries, irregularities of the teeth, tartar, and pyorrhœa. Thus it seemed to me that the physical consistency of the food, when of such a nature that it required crushing and disintegration between the teeth, was often a factor helping in no small degree the cleansing of such parts of the enamel as were subjected to friction. But not all foods which required crushing were detergent in their effects. It was obvious that many prepared or denaturalised foods, such as biscuits, toffee, and chocolate, did not by any means leave the teeth clean. Rather was it found that foods such as these tended to cling about the teeth and remain in the crevices. In a general way it was found that the more detergent foods were of a fibrillar nature, and in the case of vegetables this fibrillar substance was usually the carbohydrate known as cellulose. Other adjuvants to the cleansing of the mouth, though not accessory food factors, were noted, such as mucus, which formed a slippery coating on the surface of the enamel, thus facilitating the removal of foods. Similarly, the solvent and flushing action of the saliva was taken into account, together with such accessory food factors as stimulated these secretions. Acids, pungent, aromatic, and stimulating principles were referred to, and the belief expressed that the constant withholding of these latter accessory food factors might give rise to atrophy of the salivary glands. It soon became evident that the accessory food factors to which I have referred were not only instrumental in maintaining oral hygiene, but that they ministered also to alimentary hygiene in a similar way. Note was specially made of the value of innutritious cellulose. These ideas have of late received considerable confirmation. Thus Dr. Percy R. Howe has shown that animals with intestinal derangement are quickly got into a healthy state by adding cellulose in the form of filter paper to their diet, and Dr. Wm. Cramer and Dr. A. N. Kingsbury have pointed out that in animals deprived of vitamin A the mucous glands atrophy and the alimentary canal becomes unhealthy. To be more explicit they say that—

> "in a normal animal the intestinal bacteria are restricted to the central lumen of the intestine," but lack of vitamin A deranges the alimentary canal, "the intestinal bacteria penetrate between the villi into the crypts of Lieberkühn and into the mucous glands of the cæcum, which they fill and where they proliferate."

In recent years many physiologists and biochemists have paid attention to one set of accessory factors sometimes referred to as stimulative in their mode of action. It is, however, extremely regrettable that they should have concentrated their attention so exclusively on these accessory food factors now known as vitamins, since, at least with regard to oral hygiene and the development of the jaw, the other accessory food factors are in practice very much more important, because it would appear that in civilised communities it but rarely happens that food as consumed is so thoroughly deprived of vitamins as to cause any trouble at all, or at least any specific disease. How little vitamin is required may be indicated by reference to the—

> "experiments of Rohmann, who has done much pioneer work in this field of research. This investigator claims to have been able to satisfy the nutritive requirements of mice with rations prepared by mixing a number of isolated and purified food components. His animals not only showed increase of body-weight from such diets, but were actually sufficiently well nourished to produce young."

It has since been claimed, however, that he failed to use sufficient care in insuring the purity of the components of his food mixture. But who is going to trouble to secure specially prepared vitamin-free foods, particularly considering that in an ordinary mixed meal the expense would be quite prohibitive?

A further indication with regard to how little vitamin is required may be gleaned from the classical experiments of Sir Gowland Hopkins. He found that in the case of rats, although they declined and died on a diet carefully purified (of vitamin), yet the addition of a very small daily allowance of milk, the total solids of which amounted to only 4 per cent. or less of the whole food eaten, induced normal and continual growth. As a sufficiency is better than excess, we might infer from experiments on rats that 96 per cent. of our foods ought to be vitamin free. However, if less than 4 per cent. of a food like milk containing vitamins *restores* an animal to health after having been completely deprived of these substances, is it not rational to conclude that even less is required to prevent animals losing their health?

It would really appear that, except perhaps in the case of scurvy, the rôle of vitamins is only of academic interest, and, as far as dentists are concerned, of no practical importance whatever. We never see, nor are we required to treat, patients in England suffering from beri-beri, xerophthalmia, rickets, or scurvy, nor are we called upon to give advice with regard to general arrested growth, as distinguished from growth

in the jaws, dependent upon the absence of vitamin A in the diet. Nevertheless, it may be well to review some recent speculations and experiments with regard to vitamins and the diseases of the teeth. This is perhaps particularly desirable at present, because in medical circles at least, misguided investigation has distracted attention from the other more important accessory food factors, and the old and fallacious belief that the lack of calcification or the bad quality of the tooth is the cause of the prevalence of caries has been revived.

THEORIES OF THE ÆTIOLOGY OF RICKETS.

Before referring specially to the teeth, it may be well to recall some of the fanciful ideas with regard to the causation of rickets which more recently have been abandoned. Not so many years ago the theory that rickets was a deficiency disease resulting from lack of fat-soluble A in the diet was widely accepted, even though Prof. Noel Paton and his colleagues in what is known as the "Glasgow school" showed that puppies could be healthily reared when vitamin A was carefully excluded from the diet, and, moreover, that rickets frequently appeared in children whose diet was relatively rich in this vitamin. It has, of course, been shown that rickets is not a deficiency disease resulting from lack of vitamin A, although it may now be contended that irradiated cholesterol, the so-called vitamin D, helps to prevent or cure the disease. Then it was shown that rickets was almost non-existent when the beneficent effect of sunlight was not withheld and as its curative effects on rickets were necessarily admitted, the hypothesis was put forward that the sunlight mobilised the vitamins, the absence of which had been presumed to be the cause of the trouble. In other words, the sunlight mobilised the little army of vitamins which was not there! It is now perhaps more generally believed that as far as a dietetic factor is concerned, the disease is the result of a positive cause, such as excess of unsuitable carbohydrates in the diet of young children, resulting in intestinal derangements. Nevertheless, the vitamin enthusiasts, presumably on account of the curative effect of cod-liver oil, now claim that the disease results from the absence of vitamin D.

When first we were introduced to the vitamin theories, we were told that these precious substances could only be manufactured by plants, and we were regaled with fairy tales about the green diatoms and algæ in the sea which manufactured these vitamins to be consumed and stored by little fish, but not used up, then consumed and stored by bigger fish but still not used up, and these in turn were devoured by the cod and the precious vitamins stored in their livers. Now it is admitted that all this fairy tale is hypothetical, as with the aid of ultra-violet light from the sun or elsewhere even human beings can manufacture this vitamin and pass it into the intestine through the bile duct. If, however, this be admitted, then it follows that vitamin D is not necessarily an accessory food factor at all; but that it is produced as the result of normal metabolism under hygienic conditions.

THE VITAMINS IN RELATION TO THE TEETH.

The assumptions made with regard to vitamin A and the causation of rickets were soon followed by similar assumptions with regard to hypoplasia in the teeth. It was pointed out, however, that with regard to the deciduous teeth, which become carious so generally, the number of hypoplastic teeth did not amount to 1 in 100, and thus that the astounding frequency of caries in the milk teeth could not be attributed to predisposition to the disease as a result of hypoplasia. Moreover, experiments were made with puppies which showed that the enamel of teeth which was hypoplastic when the first part of the crown was formed, became normal when fat-soluble vitamins were deliberately excluded from the diet after the hypoplastic part of the enamel had been formed, while, on the other hand, the enamel did not become hypoplastic even although there was n vitamin A in the diet. Since it has been shown tha lack of vitamin A is not the cause of rickets, I fanc similarly even enthusiastic vitaminists have abandone the vitamin A deficiency theory of dental hypoplasia

Naturally, I am not an opponent of theories whic claim that accessory food factors are of importance but a review of the facts brought forward in recen years indicates that except in so far as vitamins ma stimulate the glands of oral hygiene, they appear t be of no appreciable value in the prevention of denta caries or the irregularities of the teeth. As, however vitamins probably stimulate the glands of ora hygiene, and as it is just possible that indirectly th absence of vitamins may occasionally predispose t disease resulting in hypoplasia of the teeth, I woul like to suggest the way in which they possibly ac Let us first direct attention to vitamin A. This supposed to be the vitamin which promotes growth Its distribution in foods has recently been somewha confused by the admission that another so-calle vitamin, that is vitamin D, was not, as it were properly separated off when the experiments for th elucidation of the distribution of vitamin A wer made. Nevertheless, we may take it that it is to b found in animal fats and green vegetables. Pa ticularly we may say that the belief in its presenc in green vegetables is least likely to be erroneou Plants as well as animals require protection from th action of bacteria, and it has long been well know that sunlight has bactericidal activities. It may b presumed that sunlight produces some change in th composition of certain kinds of organic matter, an that the resulting substance has a deadly effect on th bacteria. Let us assume that food is eaten containin organic matter which may have thus been transforme by the action of ultra-violet rays, then these leth accompaniments of the food will not only tend destroy bacteria, but will also stimulate the glan in the alimentary canal which are provided for th control and removal of bacteria and obnoxio substances. Suppose, on the other hand, foods ha been eaten which have been completely purifie from these antibacterial substances produced by th action of sunlight, then the bacteria would have better opportunity of proliferating, and the glan for the preservation of alimentary hygiene would n have their normal stimulation. If, however, th bacteria in the intestine are not properly controlle they will produce toxins of various kinds whi interfere with normal metabolism and growt Similarly with vitamin D. This may be produced b irradiation from cholesterol and some other organ substances. Taken by the mouth this "vitamin would act much as does vitamin A. We kno however, that it is not always an accessory fo factor. As previously indicated, we recognise it ma be produced in the animal body by the action sunlight, and passed into the alimentary canal wi the bile. But the bile, as has long been known, h a controlling action on the bacteria and their produc and stimulates the alimentary canal to perform i normal functions in a proper way. Thus, the vitamins A and D are protective, inasmuch a directly or indirectly, they exert some antibacteri influence restraining the proliferation of the bacter and preventing them, as has been indicated, fro entrance into the glands of Lieberkühn and t mucous glands in the cæcum. In addition to t action of sunlight, exercise stimulates the prop functioning of the liver, and altogether we may s that the liver is a most important organ from t point of view of alimentary hygiene. According this theory it is not at all surprising to note th puppies could be reared without rickets when t puppies were given fresh air, exercise, and sunligh even though they were deprived of animal fa containing vitamin A and D. That cod-liver oil h a curative effect on rickets has long been known, a it can hardly excite surprise that a very useful dr in the treatment of rickets should have been found something extracted from the liver. It would simp

seem that the extract from the cod's liver supplied the intestine with the very substance which in a rickety child was absent from the biliary secretion as the result of improper feeding, lack of sunlight, exercise, and fresh air. It will thus be seen that it is really incorrect to speak about a "growth" vitamin, or an "antirachitic" vitamin, for growth is a primordial or inherent attribute of all living cells, at least until they become specialised in their functions, and it is not that the vitamin promotes growth, but rather that the absence of vitamins may allow toxic substances to retard or prevent it. Growth is almost completely controlled by hereditary causes and is affected in a remarkably small degree by dietetic vagaries, though partial starvation does affect it. Children follow their parents in size, not according to what they are given to eat but according to certain laws of heredity. If a deficient supply of vitamin A were to be regarded as the cause of the shocking prevalence of dental caries in England to-day, it would be difficult to explain why the stature of the English is greater now than it was a few hundred years ago. So, too, would it be difficult to explain why in New Zealand the children were specially well grown and heavy, while their teeth are considerably more ravaged with caries than are the teeth of English children in England. Similarly with the so-called antirachitic vitamin. The antitoxic or lethal substance, that is vitamin D, is not specifically antirachitic. The function of this substance is presumbly to control the bacteria and their products in the intestine, as these, if uncontrolled, may predispose to or give rise to rickets and other diseases.

An interesting corroboration of this view is to be found in certain dental considerations. Dr. H. Waller has brought forward conclusive evidence that oral sepsis produces such a change in mother's milk, that a child deriving its milk from its own mother fails to grow and put on weight so long as the oral sepsis continues. When, however, the oral sepsis is put right, generally simply by the extraction of all the teeth, and without change of diet, the child begins to thrive and put on weight. Thus it is evident that ill-health, loss of weight, and absence of growth in the infant resulted from toxins and not from lack of any vitamins in the mother's diet.

Now let me refer briefly to vitamin B. Beri-beri is the disease which is commonly said to result from the absence of this vitamin in the diet. It has been noted that in those countries where this disease is prevalent, the teeth are relatively excellent. This I had the opportunity of verifying to some extent during a voyage to the East last year. Now, if beri-beri results simply from a deficiency of vitamin B, as many vitamin enthusiasts might like us to believe, its epidemic nature would be difficult to explain. On the other hand, if we admit that Nature has made a wise provision in putting some substances of an anti-bacterial nature into the covering of the grain, we see how polished rice, having this protective coating removed, may allow the bacteria or virus which causes an epidemic of beri-beri to proliferate on the unprotected grain.[1] This would explain why beri-beri might break out in epidemic form in a district where the bacteria or virus causing the disease were present, whereas in countries in which white rice and other decorticated grains were almost exclusively eaten, the disease would not occur if the active cause were not present.

With regard to vitamin C I have no intention of saying anything against it, although as far as dental caries is concerned it may be of as little consequence as any other vitamin. This vitamin is known to be rather easily destroyed by cooking, and one of the principles of dietetics which I claimed to be of value many years ago was that the dietary should contain some uncooked food. If the assumption that vitamin C is necessary in the dietary be correct, then the desirability of uncooked fruit and vegetables will have all the better chance of coming into vogue. The limitation of the conception of accessory food factors to vitamins is, as already indicated, very regrettable, since the other accessory food factors are of much greater practical value, especially with regard to the prevention of the diseases of the teeth. Moreover, when the other accessory food factors which are destroyed by cookery and the ultra refinement of food are sufficiently retained in the diet, it may be seen that the accessory food factors known as vitamins are amply provided for.

Here, however, it should be said that cooking was probably primarily beneficial in that it destroyed or removed an excess of lethal substances or vitamins which were useful to the plants but injurious to the animals that tried to consume them. Of course, like many other good things, cookery and the refinement of food can be carried too far, and the presentation of food to children in a chemically pure form—e.g., sugar, and concoctions made with it, may, and does, give rise to disastrous results.

DIETARY OF CHILDREN IN RELATION TO THE PREVENTION OF CARIES.

Let me now give you an illustration of the dietary for children advocated many years ago for the prevention of dental caries. It may be regarded as the prototype of numerous leaflets which have since been issued in England. It reads as follows:—

Important Short Rules for the Prevention of Decay in Teeth and Associated Diseases.

1. During the first two and a half years of life *all* starchy *or sugary food* (except milk) *should be given in a firm or fibrous form*, so as to stimulate mastication and insalivation, and thus promote the healthy growth of the jaws and the regular arrangement of the teeth. Bread, rusks, or any other farinaceous foods should never be added to or soaked in milk. Bread with crust (and butter), toasted bread (and butter), should form a considerable part of the solid part of the meals habitually given to children of this age. As the infant passes from the milk diet to the more solid diet the milk should be more and more diluted with water. During this period also the solid food should be eaten first and the milk and water taken after.

2. *After the age of two and a half years children should always have a considerable amount of the farinaceous food in a form which will stimulate a pleasurable amount of efficient mastication.* The albuminous part of their diet should also be presented in a form which will encourage mastication—e.g., boiled fish, meat, and later, bacon. Milk or milk substitutes should only be allowed in small amounts.

3. The meals should be *arranged* in such a way that if soft, starchy, or sugary food has been eaten, the mouth and teeth will be cleansed by food of a detergent nature taken immediately after. Thus, therefore, when sweets of any kind—e.g., milk puddings, jam rolls, cake, sweet biscuits, bread and marmalade, or jam are eaten, fresh fruit should be taken afterwards.

4. *Three meals daily are to be preferred to any greater number*, as the longer the interval the more hygienic is the state of the mouth and stomach and, therefore, the more perfectly adapted for the reception of a further meal. *Sweets, chocolate, or biscuit and milk should never be eaten between meals, or before going to bed.*

Then followed two lists of foods indicating those which were liable to induce dental caries and those which tended to prevent it.

Not Cleansing and Liable to induce Dental Caries.—Farinaceous and sugary foods in general, without fibrous element. Examples: Sweet biscuits and cake, bread and marmalade, bread and jam, new bread without crust, bread soaked in milk, milk puddings, porridge and milk, preserved fruit, chocolate and sweets of all kinds, honey. Liquids: Cocoa and chocolate.

Cleansing and Preventive of Dental Caries.—Fibrous foods generally. Examples: Fish, meat, bacon, poultry, uncooked vegetables, lettuce, cress, radish, celery. Cooked vegetables are, as a rule, cleansing, but in a less degree than uncooked vegetables. Stale bread with crust, toasted bread of all kinds, twice baked bread, pulled bread and cheese. Savouries. Fresh fruits, especially those requiring mastication—e.g., apples. Fatty foods—e.g., butter, margarine. Liquids: Tea, coffee, water; also soups and beef tea.[2]

[1] For a full explanation of this, or a similar theory, see Marine Hygiene and Sanitation, by Gilbert E. Brooke, Chief Health Officer, Straits Settlement Medical Department.

[2] Selected for use in the Clinic of the Preventive Dentistry and Oral Hygiene Department, Harvard Dental School.

It will be seen that these rules and the detergent types of food indicated provide amply for all the vitamins that are required. When writing these rules I had in mind the fact that the prevention of dental caries should not be considered an entity in itself, and consequently this dietary was intended to make provision for the prevention of tartar, pyorrhœa, the irregularities of the teeth, and indeed of all other diseases, so far as this was possible as a result of dietary reform. You will note that not only was the accessory food factor in the nature of the physical consistency of the food specially provided for, together with the stimulants required for the glands of oral hygiene, but also that the sequence of the articles of diet in the meal was so arranged that the mouth would be left in a hygienic state—i.e., the detergent foods come last. The non-recognition of these points is the chief error in most diets recommended for children, if indeed we overlook the harm that is often done by the unbridled recommendation of the articles of diet in the non-detergent list.

Suppose, however, that a dietary were suggested, as it frequently is, based on the presumed value of vitamins, all of which have no value in encouraging mastication, what use would it be from the point of view of the prevention of decay or the irregularities of the teeth? What value would it be from the point of view of a balanced diet? What value would it even be from the point of view of nutrition and energy? How far the attempt to construct a dietary on a vitaminic basis has been carried for the prevention of diseases which hardly ever exist in civilised countries, may be indicated by a recommendation recently given in the editorial columns of a medical paper. The subject under consideration was the prevention of dental caries, yet the author of the article maintained that bacon should be omitted from the dietary! There are few foods so excellently adapted for the stimulation of mastication and oral hygiene as bacon, and few are equal to it from the point of view of nourishment, energy, and heat production. Moreover, flavour or tastiness in food is not to be despised. Another recommendation showing the folly of basing a dietary for children on vitaminic considerations is to be seen in the advocacy of milk and cereal food. This amounts to little more than prolonging the age of pap feeding and the continuity of the shocking prevalence of the diseases of the teeth. The children in races like the Maori in New Zealand, the Eskimo in the Far North, and the Aboriginals in Australia are never given cow's milk, and cereals, if eaten at all, form but a negligible part of their dietary, yet their teeth are unexcelled by any other race in the world with regard to freedom from caries. It is thoroughly well recognised that where the land flows with milk and honey, there you have caries rampant in the classes which get these foods most, notwithstanding their vitamin content. Surely by this time dieticians might know that the hygiene of the mouth was not ministered to by milk, bread soaked in milk, milk puddings, and biscuits and milk. These and other like foods are examples of what should not be recommended by anyone having the slightest regard for the teeth or oral hygiene. It is lamentable to think that medical men are apparently still oblivious of the fact that a child of 2½ years is almost invariably blessed with a full set of most excellent and efficient teeth, and that the craze for vitamins makes them imagine that a milk diet mixed with other highly fermentable carbohydrates can be plastered about the crevices of the teeth without leading to the destruction of the natural denture. Even although the cereal were taken with the husk, say, in the form of brown bread, this as has been shown, ferments when masticated and mixed with saliva as rapidly as white bread, and the difference in its tendency to lodge about the teeth is not very notably less. If food values were to be adjusted according to the narrow theories of vitamin enthusiasts who base their beliefs on animal experiments, why should they not boldly advocate a diet of green grass and dandelions?—especially for nursing mothers.

Surely it should be recognised that different speci of animals have different requirements with regard food and feeding, apart from its vitamin content Scraped carrots and mushy spinach may be all rig for rats, in order to supply vitamins which have bee carefully excluded from their diet. But such foo will not stimulate mastication in young children. other ways, too, they may be quite unsatisfactor Thus the amount of fat and protein and nutriti generally is disproportionately small compared wi the innutritious cellulose, and the digestibility of t mixture leaves much to be desired. Perhaps one the unexplored problems is the most desirable for of cellulose. There are reasons for thinking that t cellulose in coarse brown bread, for example, is n always the most suitable. Whether this is due to t kind of vitamin present, or some other cause, does n seem to have been investigated, and although advocating dietary reform I have for more than quarter of a century maintained that we should t to preserve the essential similarity of the environme and dietary to that which obtained during t evolution of the species, yet it must be remember that cereal foods are somewhat artificial products civilisation, even though the whole grain is inc porated in the completed article of diet. I am afra however, the question cannot be settled by experimer on rats, dogs, guinea-pigs, and other animals.

AMOUNT OF VITAMINS REQUIRED.

Let us return again to a consideration of the amou which is required. We have noted that less than 4 p cent. of foods containing vitamins is all that necessary to restore an animal to health even af previous depletion of vitamins in the food. Nev theless, it seems to me that a considerable range possible. However, when we recognise that vitam are probably substances of a lethal nature, we mu observe that there is a possibility of doing harm advocating a dietary containing an excess of the substances. One might bring forward much evide which would suggest that an excessive vitamin inta was frequently more harmful than beneficial. Th many people are not able to eat much fruit or uncook green vegetables without feeling harmful effec Many, too, are liable to be upset by milk, crea animal fats, and coarse brown bread, notwithstandi the general truth that these foods contain nouri- ment in a very good assimilable form, and physician of experience would venture to treat a ch suffering from rickets by at once administering la doses of cod-liver oil. It might be fair to say th the amount required is just enough to prevent t glands of oral and alimentary hygiene from becom atrophied or otherwise hindered from perform their proper functions. Since vitamins are pres in small amounts in many animal tissues, it is possi that they may be stored and presumably transfer to any tissue which might be liable to be invaded bacteria. On the other hand, as they are found the fæces it is presumable that when present in unc amounts they are kept out of the system. They only partially absorbed and the bulk may thus passed out together with the bacteria whose growth th may have restrained. Our attention is specially dra to the fact that it is not desirable to have an exc of vitamin D, since where or when ultra-violet li is abundant the skin is permanently pigmented, a even where sunlight is not abundant, provision made for controlling the amount of this vitamin temporarily tanning the skin. Nor have we any evidence that large amounts of vitamin A are of slightest use in the prevention of caries. In relativ wealthy countries, especially among the well-to-, the animal part of children's diet consists largely milk, eggs, and butter, yet their teeth are a disgr to civilisation.

If these views may be taken as an explanation m consistent with the facts than is generally given, see that the word "vitamin" is even more ob tionable than it has already been shown to Vitality is inherent in all living tissues, and vitam

e not required to impart it. They only help to event bacteria and their toxins from interfering ith vitality. Thus, instead of comparing vitamins the electric spark in a motor engine, we should ther call them "mortamins," and to see in them the tivities which might be attributed to Nature's anti-cterial or, indirectly, germicidal drugs. Should this the correct explanation and if research workers not recognise it, they may heap up confusion even ore than they have already done in their search r an explanation of the activities of vitamins.

It should always be observed that caries originates tirely from conditions external to the tooth. The icroscopic structure below the surface of the amel has nothing whatever to do with its cause, ly the external form and relations of the tooth can fect this. And if any hope for further profitable search with regard to vitamins and dental caries is be made, this must be recognised. There are three ays in which vitamins, or rather "mortamins," ight help in the prevention of caries: (1) They ight, and probably do, stimulate the proper func-oning of the glands of oral hygiene. (2) They ight inhibit the proliferation and activities of the id-forming bacteria associated with the disease.) We know that nitrate of silver may stain and rmeate the enamel, more especially where it is fective, and that this has an inhibitive effect the progress of caries. It is just possible that mortamins" might act in a similar way. We need t consider the hypothesis that vitamins, lymph, or tibodies coming via the pulp are the factors quired to harden or to secure immunity of the amel to caries, since teeth with extirpated pulp ay and generally do show an equally "vital" or adly resistance to the disease.

Let me now conclude by giving a more concrete ustration in practical dietetics of some of the regoing observations. Let us analyse a simple eal, breakfast, for example. The most generally mitted dietetic principle is that man is a mixed eder. He does not, neither does he care to, live bread alone. But bread is a staple article of diet d almost invariably forms part of the breakfast eal. Now, in England, at least, there has been much ntroversy with regard to the relative value of white of brown bread. Particularly in recent years it has en claimed that white bread was devitalised, vitaminised, and in various other ways rendered eless or harmful. It was condemned most frequently cause it did not contain everything. But, as indi-ed, man is a mixed feeder and it would be most desirable to be able to produce a bread or food d live entirely upon it. As bread is not a complete d, and let us hope it never will be, we have to nsider not only what foods go best with it to make complete meal, but also what kind of bread goes st with the other necessary accompaniments. course, we know that bread is deficient in fat, and centuries at least the usual addition to the bread compensate for this was butter. In addition to s, a light breakfast would include something in the ture of café au lait. Thus the 4 per cent. of aminic food would be well provided or. But in gland this would be considered a rather poor akfast. The most usual addition to the light akfast referred to is an egg. The yolk contains ich supply of vitamins. Still more then it is not essary to have a bread containing much or even vitamin. Two eggs are generally considered eggy. May not this be due to excess of vitamin? rasher of bacon in addition to the egg is most erally welcome. This does not increase the amount vitamin. These additions give rather better ance to the meal, and provide a form of protein higher biological value than the protein contained the bread. When an egg-and-bacon breakfast is en, it is generally considered desirable to have the te bread toasted and the butter which would mpany the simple bread-and-butter breakfast is erally omitted. It is perhaps significant that n has chosen or prefers to eat toasted white bread with bacon and egg. Instinctively, he does not want to upset his liver with too much egg, nor to have a good meal spoiled with an excess of vitamins.

Of course, there are many other points to be considered. White bread appears to keep better than brown bread. It certainly toasts better, and with bacon it tastes better. While toasted bread stimulates mastication, this can hardly be said with regard to an egg. A rasher of bacon, however, together with the toast supplies most excellently all that is necessary from this point of view.

A good meal may easily be changed into a bad one, and this is often still done by finishing it off with bread and marmalade, jam, or honey. There is amply sufficient in the egg-and-bacon breakfast without this tooth-destroying addition, but if a special finish is required apart from taking the coffee last, the hygienic termination can easily be got from fresh, firm, fibrillar fruit full of fragrant flavour.

PYREXIA INDUCED BY INTRAVENOUS PROTEIN THERAPY IN GENERAL PARALYSIS.

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FOR many years past non-specific protein therapy has had its place in the field of medicine. The mode of action of these foreign proteins still remains obscure, but one thing they have in common—namely, the capacity to produce pyrexia if given in appropriate dosage.

Of recent years the malarial treatment of general paralysis has been attracting attention, and results have been recorded which would seem to justify its use. As a result of the experience obtained by the study of a series of cases treated by malaria and reported jointly with Dr. H. E. Brown, of this service, in the Board of Control's annual report for 1925, it was decided to treat a further series by means of what one might term "artificial malaria," the pyrexia being induced by intravenous injections of T.A.B. vaccine.

The work is not yet completed, only two cases out of a total of 13 commenced having finished the course of treatment decided upon and described below, but the results obtained, as stated in a brief communication in the Board of Control's annual report for 1925, seem to warrant a further note.

Kunde, Hall, and Gerty [1] report a series of 12 cases treated by 13 injections on alternate days of mixed typhoid vaccine, giving an average temperature on the chart shown of 103·2° F. The dosage used increased gradually from 200 to 500 millions.

The material used has been the stock vaccine prepared by Burroughs and Wellcome, containing 1000 million *B. typhosus* and 750 million each *B. paratyphosus* A and *paratyphosus* B per c.cm.

The course decided upon here is as follows:—

1. A series of ten daily intravenous injections of T.A.B. vaccine increasing in dosage from 300 millions to 6000 millions.
2. A series of four intravenous injections at weekly intervals of 0·45 g. N.A.B.
3. A series of ten vaccine injections daily with a dosage increasing from 1500 millions to 25,000 millions.
4. An exactly similar series of N.A.B. injections to (2).
5 and 6. A repetition of (3) and (4).

The interval between each of the above series of injections averages four weeks, and complete serological examination of blood and cerebro-spinal fluid is carried out between the stages.

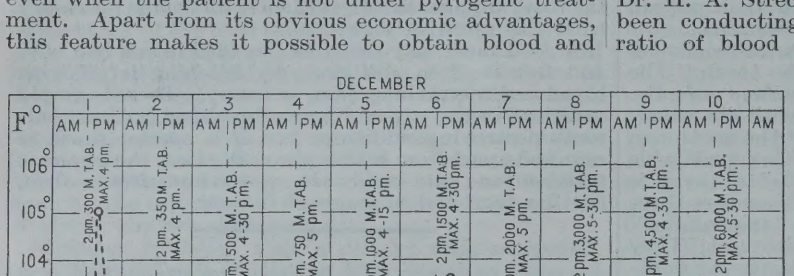
Results.

Temperatures up to 106° F. have been registered (see chart), and the average is well up to the standard obtained in the pyrexia of malaria. The

[1] Jour. Amer. Med. Assoc., Oct. 23rd, 1926.

rigors are severe, vomiting and diarrhœa occur frequently, but no permanent ill-effect has been noted in spite of the massive doses used. The occurrence of protein cachexia mentioned by Petersen [2] has not been observed.

Perhaps the most striking immediate result of the vaccine injections is to be seen in cases of excited general paralysis. The extreme motor restlessness is quickly controlled, and so far seems not to return even when the patient is not under pyrogenic treatment. Apart from its obvious economic advantages, this feature makes it possible to obtain blood and cerebro-spinal fluid for examination with the minimum of difficulty whenever desired.



Focal reactions have been noted in several cases, notably in one man who developed apical abscesses related to some dental stumps, and remained extremely restless and violent until these were extracted. This case serves to emphasise the importance of dealing with such obvious sources of irritation and toxin production before undertaking anything further.

One patient developed well-marked herpes in the region of distribution of the lacrymal branch of the ophthalmic division of the trigeminal nerve, which cleared up, leaving slight scarring behind. This raises the question of the possibility of a focal reaction in the Gasserian ganglion. Most of the cases developed at one time or another ordinary herpes febrilis in the circumoral region.

It is not yet time to give figures, as treatment of this series was commenced only in December, 1925, and is as yet by no means complete, but in general, certain beneficial results have been noted, as follows: Restless and excited paretics have become quiet and easily managed, and considerable physical and mental improvement has occurred in those cases which were not too far advanced in the disease at the commencement of treatment. The above series represent the ordinary general paralytic admitted to this mental hospital, not specially selected cases, and it is an unfortunate fact that one does not often see really early general paralysis in these institutions. As far as could be ascertained the average duration of the disease from the earliest symptoms before the commencement of treatment in the above series was about 15 months.

Several men, formerly slovenly in dress, careless in habits, and quarrelsome in nature are now clean, tidy, and helping in the routine ward work. Ten cases are at present in one small ward with, so far, complete immunity from the crop of minor accidents and quarrels that in the ordinary way one would expect to result from the misdirected activities of that number of general paralytics living together.

No constant change has taken place in the Wassermann reaction in either blood or cerebro-spinal fluid. Negative results have been returned on occasion, only to be succeeded by a positive finding later. The gold-sol test and the globulin and cell content also show no constant alteration. In connexion with these cases, Dr. H. A. Strecker of the research laboratory, has been conducting an investigation into the bromine ratio of blood serum and cerebro-spinal fluid, the result of which it is intended to communicate later.

Advantages and Disadvantages of the Treatment.

The *advantages* of this form of fever production, as compared with that obtained by malaria, appear to be as follows:—

1. A regularly recurring high degree of fever can be produced by appropriate dosage, similar to that produced by malaria (vide chart).

2. A living organism is not introduced.

3. The material is standardised and easily obtained; it is possible to regulate the amount given accurately.

4. The disadvantages connected with the use of mosquitoes are obviated—namely, special transport facilities and storage apparatus—as well as anti-mosquito rooms and nets, thus enabling the treatment to be carried out even in summer.

5. There is no incubation period and there is no possibility of a failure to react as may occur with malaria in the winter. In all cases the rigor has commenced within half an hour to an hour of injection.

6. Immunity is incidentally conferred against the typhoid group of infections.

7. In the unlikely event of any untoward symptom arising the injections can be discontinued. Malarial pyrexia cannot be stopped by quinine with the same facility.

The *disadvantages* are:—

1. The possibility of inaccessible veins, or of thrombosis occurring in a vein as the result of frequent injection into, perhaps, the only vessel accessible. This has occurred only in one case.

2. The treatment occupies rather more time than that examining of blood films for malarial parasites at intervals.

3. In the higher dosages the material as purchased is expensive.

It can, however, be made at much less expense in a suitably equipped institution laboratory if massive doses are to be used.

DIAGNOSIS OF CORONARY THROMBOSIS WITH REPORT OF A CASE.

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SUDDEN occlusion of the coronary arteries was regarded until recent years as synonymous with sudden death, and, with but few exceptions, as a post-mortem interest rather than as an ante-mortem clinical entity. A survey of English text-books is barren of any advance on the subject, and there is little to choose between the statement of Broadbent in 1906 that "there are no characteristic physical signs or symptoms by which thrombosis of the coronary arteries can be diagnosed" and the statement of Price [2] in 1918 that "complete and abrupt closure of a coronary artery is usually fatal. If the vessel be small the patient may recover, but the

[2] Protein Therapy and Non-specific Resistance, by William F. Petersen, M.D., p. 247.

ondition is one which is recognised with difficulty uring life."

Clifford Allbutt,[3] it is true, discussed some few f the symptoms of coronary thrombosis, but only n passing, and made very little attempt to correlate nte-mortem symptoms with post-mortem findings. A clearer vision had been displayed in 1910 by Osler [4] n the Lumleian lectures. Thus, in speaking of the se of digitalis, he refers to one type of case in which narked cardiac weakness follows an acute single ttack of angina pectoris in a comparatively healthy nan, and states that post-mortem experience shows hat the lesion in such a case is very likely to be locking of one of the coronary vessels. Further, e realised the possibility that a man may get on ery comfortably with only the main branch of one oronary. Recently, cases of coronary thrombosis ave been recorded by Gibson,[5] Coombs and Hadfield,[6] Bulmer and Mason Lamb.[7]

In the German literature cases have been recorded n which a diagnosis was possible and the patient urvived. These are referred to in Romberg's [8] ext-book, but are regarded by the author as highly xceptional.

The main advance on the subject is to be found n a prolific American literature which has sprung p in recent years. The contrast between this gap n English literature and the multiplicity of references n American journals was stressed recently by McNee,[9] riting from the Johns Hopkins Hospital, Baltimore. 'erhaps the most representative articles are those of Ierrick [10 11] in 1912 and 1919 and that of Wearn [12] n 1923.

Clinical Features of the Condition.

It is apparent from a study of the literature that ven large branches of the coronaries may be occluded ithout an immediately fatal issue, and that the atient may survive the accident by hours or days, nd in a few cases by months or years. In those who urvive there is a characteristic clinical syndrome of hich the features may be summarised as follows :

1. The patient is usually past middle life, and may or may ot have experienced previous attacks of angina pectoris.
2. The onset is abrupt, usually with pain of extreme verity and persistence, unrelated, as a rule, to food or ertion, and recognised by the patient as unlike any pain reviously experienced. The localisation varies and may e abdominal. The pain is not relieved by morphia.
3. Symptoms of shock, with anxiety, cold sweat, collapse, eble pulse, and low blood pressure. The face is ashen nd slightly but variably cyanosed.
4. Dyspnœa, sometimes sudden and urgent.
5. Nausea, vomiting, belching of gas.
6. Signs of heart failure with enlargement of the heart, dema of the lungs, congestion of liver and kidneys.
7. Pericardial friction; inconstant, but of extreme agnostic value.
8. Pyrexia and leucocytosis.
9. Variation in the electrocardiogram.

Of the articles dealing with the electrocardiograms coronary thrombosis, the most instructive are ose of Fred. M. Smith. Smith [13] reported in 1918 investigation in which an electrocardiographic udy was made on the dog following ligation of the ronary arteries. Confirmation was recorded in a rther experimental study [14] in 1920. In 1923 he ported [15] his findings in man and discussed 11 cases, cluding one in which the descending branch of the t coronary artery was ligated in the repair of a ab-wound of the heart. The curves, particularly those patients in whom tracings were taken early d at frequent intervals following the thrombosis, rresponded closely with those obtained in the dog. e most constant changes were negatively of the deflection and a decrease in the amplitude of the R S group. Similar changes have been reported Herrick,[11] Pardee,[16] who regards as diagnostic upward convexity of the S–T interval, Robinson d Hermann,[17] and Kahn.[18]

Whilst this work is suggestive, it is by no means nclusive, and further investigation is required before finite diagnostic significance can be attached to any pe of electrocardiogram.

Case Report.

J. P., a male, aged 46, was admitted to Mercer's Hospital on April 12th, 1926, under the care of Sir John Lumsden, at whose request I saw the case, and with whose kind permission I now publish it.

The patient stated that he had been suffering for 18 months with periodic attacks of precordial pain, which radiated down his left arm, leaving it numb. These attacks were related to food and to exertion. The relationship to food was so definite that he attributed his symptoms to stomach trouble. Between the attacks of pain, and still more during the attacks, there was complaint of breathlessness and of palpitation. Giddiness and faintness were noted during the bouts of pain. This pain had occurred more frequently during the week before admission and it was for it that he sought hospital treatment.

Previous Illness.—On inquiry as to venereal disease, he stated that 18 years previously he had undergone treatment —scant and haphazard—for recurrent rashes. He granted the possibility that these were of the nature of venereal infection.

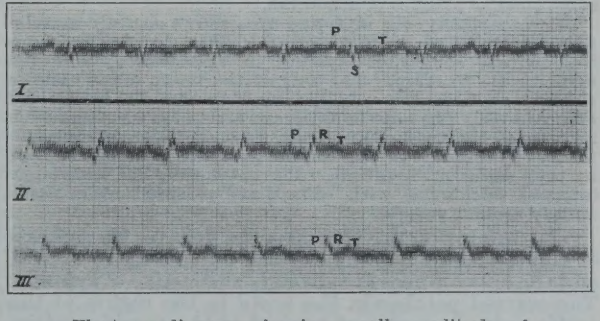
Personal and Family History.—He had been married nine years. In the first year of marriage his wife had an abortion. There were no living children. He stated that his grandfather, father, sister, and brother had all succumbed to heart disease.

History after Admission.—On arrival in hospital patient was fairly comfortable and remained so until 2 A.M., when he developed an agonising attack of pain, referred to the precordium and to the left arm. He stated that this attack was altogether more severe than and unlike any attack previously experienced. The pain lasted about 30 minutes and was accompanied by much anxiety. Seen by me on the following morning, he was ashen coloured, lips cyanosed, sweat on the forehead, with a general appearance of shock reminiscent of a case of gastric perforation. He was restless and anxious. The pulse was feeble, rate 124 per minute. The blood pressure was 110 mm. systolic. Breathing was laboured, respiration-rate 28 per minute. The temperature was subnormal. The apex beat was not palpable. Cardiac dullness extended about half an inch to the left of the nipple line. Heart sounds were almost inaudible and a faint systolic murmur was to be heard over the mitral area. The liver was enlarged and palpation over it revealed distinct tenderness. Numerous bubbling râles were heard over the bases of both lungs.

Diagnosis.—A diagnosis was made of coronary thrombosis, and the probability was suggested of antecedent syphilitic heart disease. The W.R. was carried out and was fully positive.

Progress.—Prostration was marked. Pallor persisted and delirium was noted, particularly towards night. The temperature rose on the day after admission to 99° F. and on the two following evenings registered 102°F. and 101·6° F. On April 16th it descended to 99° F. and after this

FIG. 1.



Electrocardiogram showing small amplitude of ventricular waves.

remained normal. The pulse-rate varied from 98 to 140 beats; respirations from 28 to 40 per minute. Albumin appeared in the urine. An electrocardiogram (Fig. 1) taken on April 20th, showed small amplitude of the ventricular complexes. In lead I. the S wave (no R wave is present) measures 4 mm., the T wave being represented by a barely visible depression. In leads II. and III. the R wave measures respectively 6 mm. and 5 mm., the T wave being again small but upright. Unfortunately, the condition of the patient permitted only one electrocardiographic examination.

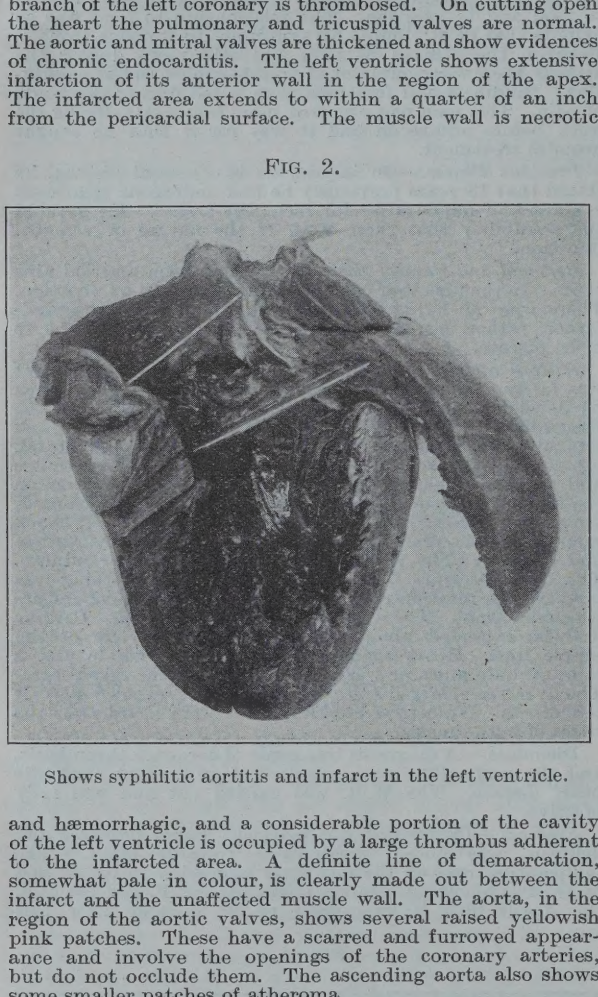
Improvement was noted on April 20th, 1926, and the blood pressure rose on this date to a systolic reading of 140 mm. This really was transient and yielded once more to prostra-

tion and delirium. On the 26th, 14 days after admission, the patient died.

Post-mortem Examination.—Only a partial post-mortem was permitted. The heart was removed by me and submitted to Dr. John Lait, to whom I am greatly indebted for the following report and the photograph (Fig. 2).

The heart is hypertrophied and when fixed weighed 22 oz. The coronary arteries are thickened and the descending branch of the left coronary is thrombosed. On cutting open the heart the pulmonary and tricuspid valves are normal. The aortic and mitral valves are thickened and show evidences of chronic endocarditis. The left ventricle shows extensive infarction of its anterior wall in the region of the apex. The infarcted area extends to within a quarter of an inch from the pericardial surface. The muscle wall is necrotic

FIG. 2.



Shows syphilitic aortitis and infarct in the left ventricle.

and hæmorrhagic, and a considerable portion of the cavity of the left ventricle is occupied by a large thrombus adherent to the infarcted area. A definite line of demarcation, somewhat pale in colour, is clearly made out between the infarct and the unaffected muscle wall. The aorta, in the region of the aortic valves, shows several raised yellowish pink patches. These have a scarred and furrowed appearance and involve the openings of the coronary arteries, but do not occlude them. The ascending aorta also shows some smaller patches of atheroma.

Microscopically, the infarcted area shows necrotic muscle-fibres with areas of hæmorrhage. The muscle-fibres are fragmented, somewhat hyaline in appearance, and the nuclei cease to stain. The rest of the heart muscle shows changes such as are usually found in chronic interstitial myocarditis. The muscle-fibres are atrophied in places with increase in the amount of fibrous tissue between the muscle-fibres. The lumen of the coronary vessels is much reduced by thickening of the intima. The patches in the aorta show internal thickening with collections of small round cells mainly around vessels.

The infarction in this case is due to thrombosis of the descending branch of the left coronary artery, and the appearances are strongly suggestive of syphilis. The scarred patches in the aorta in the region of the aortic valves are almost typical of the specific nature of the lesion. Frequent attempts to demonstrate the spirochæta by Levaditi's method proved unsuccessful.

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(*Continued at foot of next column.*)

Clinical and Laboratory Notes.

NOTE ON THE CAUSATION OF HEART SOUNDS.

BY G. ARBOUR STEPHENS, M.D. LOND.,
CONSULTING CARDIOLOGIST, KING EDWARD VII. WELSH NATIONAL MEMORIAL ASSOCIATION.

ABOUT six months ago a man of athletic build who played regularly for a senior football team presented himself for examination before being admitted to one of the local factories. On examination he was found to have a marked mitral systolic murmur without any other evidence of cardiac disturbance. He acknowledged no illness of a rheumatic nature, and stated that he felt quite fit. He was admitted to the factory on condition that he came up for re-examination in six months' time. When this period had elapsed no murmur was to be heard, but on being pressed he confessed that when previously examined he had not slept for a week, as he had been by night in charge of a mental case.

How can worry and want of sleep such as this man experienced give rise to a cardiac murmur? The answer depends entirely on what we consider to be the cause of the normal sound. If we do not know the cause of the normal heart sound how can we know the cause of the abnormal?

My explanation is as follows. In health there is about 8 c.cm. of fluid in the pericardial cavity. This fluid is under a negative pressure of about 6 c.cm. of water, and as a result of this negative pressure, to which I first drew attention [1] in 1916, there is a suction action which keeps the fluid at an equal thickness all over the heart's surface. The quality of the fluid, as well as its quantity, depends on the general metabolism of the body, and if this metabolism be disturbed by any factor, such as worry or want of sleep or both, the pericardial fluid suffers accordingly. As I have previously pointed out,[2] I consider that the heart sounds are produced by the movements of this pericardial fluid, and not by the contraction of the muscle of the heart. To produce a sound corresponding to the pitch of the normal heart sound at least 60 vibrations per second are required, whereas the heart contracts little more than 60 times per minute. If the valves cause a cardiac sound by their impact, how is it that when they are destroyed by disease and can cause no impact the sound is intensified considerably?

Fluid in a sac can be demonstrated to give rise to sounds exactly resembling those of the heart. To demonstrate these sounds all that is required is a small rubber balloon, half a teaspoonful of water, and a piece of string. Place the water in the balloon and tie the neck of the balloon as it lies quite flaccid. Place the chest piece of a stethoscope over one end of the balloon and at the same time gently press the other end with the forefinger; then the "heart sounds" will be heard.

If my contention is correct, considerable modification of present-day teaching seems to be needed.

[1] Dublin Journal of Medical Science, October, 1916.
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(*Continued from previous column.*)

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NOTES ON

REATMENT OF NURSING MOTHERS WITH ULTRA-VIOLET RAYS.

BY CATHERINE CHISHOLM, M.D. MANCH.,

AND

MARGARET MCKILLOP, M.B., CH.B. GLASG.

As sun treatment is apparently successful in improv- general metabolism, an experiment was made at e Manchester Municipal Sun Clinic to see if ultra- olet radiation was of value in maintaining the milk pply of nursing mothers. The mothers were sent from the infant welfare clinics because breast lk was failing, and occasionally because they were ry debilitated, and it was therefore feared the milk pply would fail. The women were exposed three times week at the distance of one yard from a Hanovia ercury-vapour lamp. They were given gradually ngthening periods, from two minutes to half an ur according to the reaction of the patient. Treat- ent was then continued at the latter rate, or reduced once a week, according to the progress or needs the patient. The patients were exposed down to e umbilicus and up to the thighs, half the time posing the front, then turning.

It is difficult to treat nursing mothers at a clinic here regular attendance three times a week is pected. They have many other duties, and are ble to miss treatment because of their own ill- alth or that of their families. These mothers often d to come considerable journeys for their treat- ent, and their tram fares were also an additional pense to poor people. The patients were of all ades of the working class, the majority, but not all, the dole; some, however, were in fairly comfort- le circumstances. They had to attend three times week, and if they did not do so with fair regularity eir treatment was discontinued. It was not con- ered, especially during the early period when the posure is short, that a less attendance than three es a week would be of value. That so many sisted under these circumstances shows that they mselves felt they were deriving benefit from the atment. Of the first 100 cases treated after ne 1st, 1926, 47 ceased to attend within a month one reason or another. As no benefit could be sonably expected unless a regular course was ten, these cases are not further considered in this ort.

n treating these women we looked for improvement he general health. This alone, in so far as it made woman more fit to undertake maternal and house- ery duties, would justify treatment. But we were oing also for improvement in the breast supply, or preservation for some time when it seemed to be ing. It was expected that its vitamin content uld be enhanced by exposure of the mother to light, so that not only would there be a greater, a better, supply.

Of the cases who persisted in treatment, 53 in nber, all experienced general benefit. In 11 cases, vever, no benefit so far as breast milk was con- ned was obvious, although in two cases the mothers l they felt better for a time. Of the 11 cases, one her had breast abscesses and had to give up; ther was absent for a time from ill-health, and refore failure was not unexpected; one mother off nursing her children with tonsillitis; three s appeared to improve slightly for a time; one ned her child owing to her private doctor's advice. he remaining 36 cases all were successful in improv- or retaining milk-supply for prolonged periods. rt notes of a few cases are appended.

aby, 9 weeks. Supply, which was failing, improved second treatment.

aby, 1 month. Baby supp. feeds of Glaxo. Mother r fed her babies more than three weeks before, and anxious to continue. In a month on breast only, and gaining well.

Baby, 10 weeks. Breast and Cow and Gate. Within fort- night milk better. Mother's health improved. Hb. index went up from 70 per cent. to 80 per cent. Breast milk increased. Baby's weight markedly improved, though C. and G. feeds were not increased.

Baby, 14 weeks. Started treatment 16/7/26—milk fail- ing. 21/7/26 breast milk test feed ¾ oz. 27/8/26 breast milk 2 oz. No supplementary feeds given. Breast fed till 7 months.

Baby, 3½ months. Mother, 31—losing milk. In month baby entirely breast fed, and mother not taking so much in the way of extra feeds. Baby breast fed entirely to 9 months.

Baby, 2 months. Breast milk failing. Milk improved and baby partly breast fed till 7 months.

Baby, 3 months. Mother giving only one breast feed a day was persuaded though without faith in treatment to attend. In three weeks was giving only two bottles in 24 hours. Later report gives milk still increasing.

Baby, 1 month. Breast fed alternately with C. and G. A week later note says mother only gave three artificial feeds since treatment began. At 7 months the notes say breast milk beginning to fail, baby has *one* bottle a day. Improvement later shows baby now 8 months entirely breast fed.

Our acknowledgments are due to the medical officer of health for permission to publish these cases.

A CASE OF

SUBACUTE YELLOW ATROPHY OF THE LIVER.

BY ANDREW BROWN, M.B., CH.B. GLASG.,
LATE MEDICAL OFFICER, COLONIAL MEDICAL SERVICE.

THE following was an interesting case.

A native male (Barotse) was admitted to the Livingstone Hospital, Northern Rhodesia, in December, 1925, suffering from general weakness, loss of appetite, and swelling of the abdomen. He stated that his illness began about three months before admission, and that his condition was rapidly becoming worse. He had always been employed as a cattleman, and could give no clue as to the cause.

Examination revealed great enlargement of the liver, emaciation, and slight yellowness of the conjunctivæ. There was only a small amount of free fluid in the abdomen, and the urine was apparently normal. The lower margin of the liver was palpable about 3 inches below the costal margin. The palpable area of the liver was covered with numerous large nodules, firm in consistence, and only slightly tender on pressure, varying in size from 1 to 3 inches in diameter. A needle was inserted into several of the larger masses, but no fluid was obtained. A small quantity of fluid was withdrawn from the abdominal cavity, and it possessed the characteristics of ordinary ascitic fluid; tyrosin was not present in this fluid. The liver gradually became more enlarged, the quantity of free fluid greatly increased, necessitating frequent aspiration, and emaciation became extreme. The patient died from exhaustion on Feb. 6th, 1926, about eight weeks after admission.

Post-mortem examination showed very great enlargement of the liver (weight 14½ lb.). The kidneys were slightly enlarged, pale, and capsule slightly adherent. The other organs were apparently normal. The outer surface of the liver was coarsely mottled—dark, irregular areas alternating with lighter yellowish patches—and firm in consistency. Other portions of the liver were softer, and on section exhibited soft, somewhat circular patches, filled with yellowish semi-solid tissue. Sections prepared from specimens gave markedly different appearances representing different stages in one pathological process. In some areas the liver cells were swollen and granular, the nuclei staining faintly, and the cell margins appearing indefinite. Many of the cells contained pigment. In other places all traces of cell-structure were absent, only a granular debris remaining. In more advanced stages all traces of the liver tissue had disappeared, the lobules being represented by the fine connective tissue framework. In some parts connective tissue proliferation and round-cell infiltration was marked, and there was also some proliferation of bile-ducts.

These findings would indicate a subacute yellow atrophy of the liver.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 193.*)

MONDAY AND TUESDAY, JULY 18TH AND 19TH.

REPRESENTATIVE MEETING.

The Duties of Medical Officers of Public Schools.

THE report of the proceedings in committee, dealing with the Council's recommendations on school medical officers, was received and approved. Therein the duties and remuneration of whole-time and part-time medical officers of public schools were defined and it was established that they should be appointed by, be directly responsible to, and have direct access to the governing body, also that satisfactory arrangements should be made in school curricula for health instruction and that the medical officer should be consulted in framing the syllabus.

Antenatal Work and the General Practitioner.

Dr. RENTON then brought forward his postponed amendment to refer the whole subject of the Midwives Act, 1918, back to the Council for reconsideration in the interests of all concerned with antenatal work. He said that the five parties concerned were the unborn child, the expectant mother, the general practitioner, the public, and the midwife. Former speakers had stated that if only the general practitioner would make himself efficient in this work he had the solution in his own hands. The experience of practitioners was that they had made themselves efficient only to be passed over. Midwives were being trained, by a three-days' course, to undertake the whole of the antenatal work. The county medical officer of the speaker's district was not unsympathetic but said that he could do nothing with the Midwives Act as it stood.—Dr. H. M. RAVEN seconded the motion and Sir EWAN MACLEAN cordially supported it, saying that it was a matter of common agreement that antenatal work was the principal avenue to the reduction of puerperal morbidity and mortality in this country. The people who ought to have this matter in hand were unquestionably the general practitioners, notwithstanding any further development of antenatal clinics or the education of midwives. They were not only willing but anxious to take part in this life-saving work. Their alleged shortcomings had unfortunately been one of the propagandist features of those seeking to establish clinics. This was a profound mistake, and any scheme which left them out of account was sure to fail.—Dr. D. ROXBURGH supported the motion from the point of view of the efficiency of the practitioner.—Dr. BONE said that the practical problem was how to get the general practitioner to do the antenatal work, and accepted the motion.

Application of the Scale of Public Health Salaries to Scottish Appointments.

The Chairman of Council reported that the Council had that day passed the following resolution:

1. That the scale of minimum commencing salaries for whole-time public health appointments amended in the manner suggested by the Scottish Committee—namely: (*a*) that the commencing salary for resident medical officers be £250 to £400, plus emoluments; (*b*) that the commencing salary of medical officers employed in departments be on a graded scale, the average salary over ten years being not less than £600, the minimum commencing salary to be not less than £500; (*c*) that the scale of commencing salaries for chief medical officers of health be as follows:—

Population not exceeding	50,000	=	£800 to £900
,, ,, ,,	100,000	=	£900 to £1100
,, ,, ,,	250,000	=	£1100 to £1400
,, exceeding	250,000	=	£1400 to £1600

(*d*) that a minimum commencing salary of not less than £700 may be recognised in county areas with a population not exceeding 25,000, where coördination with an adjoining area is not feasible, be accepted for application to Scottish public health appoi ments as a working arrangement for one year only as fr June 16th, 1927; and

2. That in the meantime the Council authorise Conference of Representatives of British Medical Associat and Society of Medical Officers of Health to consider modification of the scale, for application to public hea appointments in England, Scotland, and Wales on following lines: That there be added to the scale a note the effect that as an alternative to the existing provisi of the scale relative to the salary of "medical offic employed in departments" there would be accepted for su officers an initial salary of £500 a year if the appointmen made on a definite scale under which, subject to satisfact service, the officer appointed would receive annual inc ments of not less than £25 (or biennial increments of less than £50) rising to not less than £750 a year.

Resolved that the action of the Council be approv

Puerperal Pyrexia Regulations.

A motion by St. Pancras—

(1) That the minimum fee payable to a recognised obste specialist for each consultation under the Puerperal Pyre Scheme be £3 3*s.* (excluding operative treatment), w reasonable additions for mileage to be mutually arranged w the local authorities; (2) that the Representative Body i opinion that the local authority should be empowered the Ministry of Health to pay a reasonable fee to the gen practitioner who meets in consultation an expert calle under the Puerperal Pyrexia Regulations; and (3) tha be an instruction to the Council to take all possible step secure that these resolutions be made effective,

was thrown out after some attempts to amend it h been discussed. It was opposed by Drs. MASTERM BONE, and HAWTHORNE, and was variously descril as "grotesque" and "the most unreasonable mot ever put forward."—Dr. D. ROXBURGH and I. W. JOHNSON supported it.

Bath put forward a motion to ensure that kinds of specialists should be included in the pa of consultants under these regulations. Sev speakers, including Dr. R. BOYD (Manchester) Dr. W. F. DEARDEN (Manchester), were anxious t the general practitioner should be eligible for th panels, as he was the man with most experience the condition. After some verbal emendation this sense the Bath motion was agreed to as follo

That it is desirable, owing to the fact that puer pyrexia may be due to causes other than obstetric, any panel of consultants which may be instituted u the Regulations should include competent physic surgeons, and pathologists, in addition to consulting ob ricians; further, that some standard of competence sh be adopted, such as membership of the staff of a general or obstetric hospital, or the possession of sp qualifications or experience by private practitioners.

Remuneration of Assistants.

In 1925 the Representative Body drew u tentative scale of remuneration for assistant general practice, but decided to take no active s to enforce it at present. A motion from the So Eastern Counties of Scotland desired to modify scale, while another from St. Pancras desire enforce it by the refusal of advertisements which not conform. Dr. J. S. MUIR, speaking for the motion, urged the difficult conditions of rural pra and the fact that an assistantship was so much of the training of a young doctor that the sugg salary of £240 per annum with board and lodging unnecessarily high. It would make it impossibl many busy men to employ an assistant at all.—Dr Cox spoke of the office difficulties aroused by scale, as plenty of advertisements, both from empl and employee, were received offering and asking than the scale. He hoped that the Represent Body would stabilise the position.—Dr. BONE poi out that the B.M.A. was often twitted with se up scales for whole-time officers and none for its assistants. A tentative policy had been achieved this was not the moment to make it rigid. first motion was rejected and the second withdr

Reports to Coroners.

Dr. J. G. MACQUEEN (Hyde) and Dr. R. B. S (Ashton-under-Lyne) proposed and carried a moti

That there should be a fee where a report has requested by a coroner from a practitioner who h

ormed a post-mortem examination and who is not called ive evidence.

r. Macqueen pointed out that in his district it was stantly happening that a report was demanded er these circumstances.—Dr. BONE replied that had always been the policy of the Association had been pressed in vain during the recent otiations. He did not think another opportunity ld arise for 50 years. The only remedy was to se to give such a report.

Nursing Home Bill.

ir RICHARD LUCE reminded the meeting that the ared policy of the Association had been that sing homes belonging to doctors should not be ected or registered. The Select Committee, ever, had not thought that it would be feasible doctors to be thus exempted. The Council had e to the same conclusion and was not taking any s to get special exemption in the Bill at present re Parliament. This Bill provided that the ecting authority should be the county or borough ncil, but an attempt was being made to impose duty on anybody that had control over maternity are, which would put it in the power of very much ller authorities. The Select Committee agreed it was essential for the inspecting officer to have status of M.O.H. of a county or borough.

Overseas Branches.

ir JENNER VERRALL, Chairman of the Overseas mittee, proposed and carried without discussion report on this subject.

General Medical Council.

r. MORSE brought forward a motion from rnemouth—

at the question of the need for revision of the existing esentation, power, and procedure of the General cal Council in order that they may comply more isely with the changed conditions of medical practice, emitted to the Council for consideration and report.

r. BONE offered to accept this motion on behalf he Council, but the meeting decided to pass to next business.

Encroachment Upon Private Practice.

uch feeling was aroused by Brighton's motion :

at the Representative Body, viewing with considerable ern the insidious inroads continually being made on te medical practice under the auspices of the State, ntary bodies, and others, and being of opinion that this t only detrimental to the interests of the individual bers of the medical profession, but ultimately to all s in the community, instructs the Council to watch all developments and actively to interest itself in safe- ling private practice amongst all groups in the medical ssion and to develop through the branches and divisions r coöperation with the local medical profession for purpose.

. E. R. FOTHERGILL enumerated a long list of nples of directions in which the work of the ral practitioner was being filched away, and said the practice of 100 years ago would very soon e to exist. If a medical man had no practice for years he became rusty ; in ten years he was a er. Before long all general practitioners would this position. The General Medical Council and tate seemed to be at cross purposes ; the former ed students to do all kinds of medical work, the r wanted a team of whole-time officers to work r the medical officer of health. This silent, less, but plausible encroachment on the private itioner had to be stopped. The private prac- ner must be retained ; he had an ideal in his life a trust in his hands as much as the clergyman or other profession and it was as well to announce Were medical men going to have a chance to that ideal in the future or were they going to be poned, regularised, and controlled until they had eedom of action or freedom of practice ?

M. E. B. TURNER supported the motion from his years of experience both of practice and of ork of sundry bodies concerned in public health ities. To say that the general practitioner could not do the work as well as the whole-time man was sheer utter nonsense. If he chose to take it up he could do it as well and better than most of the young practitioners who were appointed. Administratively, no doubt, the whole-time practitioner was "tamer" and easier to work. Contract work was not the ideal ; the ideal was the work done between the medical practitioner and his patient, but the younger generation of doctors were being educated to expect a good deal of contract work. The medical profession, concluded Mr. Turner, was skidding on a very slippery slope at the bottom of which there was nothing but a cemetery in which would be buried all that made the profession worth while. The only thing that could arise from that cemetery was the spectre of a whole-time State Medical Service, which would take all the humanity out of the profession and leave instead an icicle wrapped up in red tape called an inspector.

Dr. H. WOODROFFE supported the motion, instancing midwifery work, to which many general practitioners looked for the jam on their bread and butter ; this was being filched steadily away.

Dr. C. E. DOUGLAS (Fife) strongly deprecated the suggestion that "the best doctor was he who could send you to the appropriate specialist." If that was right the practitioner, instead of being the skilled and trusted adviser of his patient, would become nothing more or less than a medical shopwalker directing customers to the appropriate department.

Tunbridge Wells brought forward a similar motion, which was finally amended to read—

That the Representative Body views with anxiety the increasing tendency to transfer the treatment of many diseases and conditions to whole-time medical officers as being detrimental to the public health, and refers to the Council the consideration of the general adoption of the following principles: (1) The function of the health authority should be confined as much as possible to the prevention of disease. (2) The work of the whole-time officer should be confined to administration, inspection, institutional, or consultative work. (3) Health visitors and nurses should be definitely responsible to a local practitioner for patients dealt with by them, including expectant mothers.

Dr. E. A. STARLING, proposing the motion, said that it was not an attack on public health medical services ; the practice of medicine was one and existed for the public good. But some of the inroads made under the ægis of whole-time medical officers were not for the public good.

Dr. E. WARD, speaking as one who had been in general practice for 10 years and a whole-time officer for 14, referred to the difficulty of getting the general practitioner to take up and keep up these part-time posts. He was sure that the difficulties could be adjusted and that it was a matter for goodwill and getting together. Joint conferences might very well take up the problem of how the private practitioner could more and more be taken into the public health service.

Dr. D. ROXBURGH, Dr. M. RAVEN, and Dr. J. A. MACDONALD also supported the motion, and both the Brighton and the Tunbridge Wells motions were carried.

Married Medical Women.

Dr. S. FARMER proposed on behalf of Bishop Auckland—

That the Representative Body seriously deprecates the recent action of the Durham County Council in dismissing one of its women medical officers from its staff on the ground of her recent marriage, and is of opinion that if marriage is to be a cause for dismissal this should be stated at the time of appointment.

Whereupon an amendment proposed by Dr. CHRISTINE MURRELL (Kensington) was seconded by Dr. E. K. LE FLEMING (Southampton), to delete the words after "marriage" and insert instead the words, "and reaffirms the Association's policy of equality of status and salary for medical men and women." Dr. Murrell said that the last clause might be taken to face both ways, and if it were admitted that a woman might be dismissed on grounds of marriage public health authorities would not be slow to take

the hint. It was not a question of whether women should continue to work after marriage but whether they should be debarred from it, whether they were to be legislated for or allowed to come to their own decision. The question of individual liberty was involved. Dr. Le Fleming reminded the meeting that the Association had always held the policy of equality and that the capacity for doing his or her job should be the only critical factor. The amendment was carried. Whereupon Mr. BISHOP HARMAN, saying that this was sitting in judgment on a body in a matter of which the meeting had no personal cognisance, proposed and carried an amendment to phrase the motion as follows :

That the Representative Body reaffirms the Association's policy of equality of status and salary for medical men and women.

In reply to a question as to what this had to do with the original motion, the CHAIRMAN said that the first four words were unaltered. Dr. MURRELL appealed to the sense of fairness of the meeting and challenged them not to be afraid of saying what they really meant. She was successful in carrying as a substantive motion (seconded by Dr. P. MACDONALD, of York)—

That the Representative Body seriously deprecates the action of any local authority in dismissing one of its women medical officers on the ground of marriage and reaffirms the policy of the Association of equality of status and salary for medical men and women.

Lunacy Law and Administration.

Dr. LANGDON-DOWN, Chairman of the Lunacy Law and Mental Disorder Committee, presented a special memorandum on this subject prepared for the Representative Body. It dealt with two separate but interdependent subjects, he said, viz., the protection recommended for medical practitioners signing certificates and the facilities recommended for treating patients. In both these respects the Committee felt that the Royal Commission's report was unsatisfactory. Fortunately, there was very general agreement as to the requirements. At the present time the atmosphere was very favourable to increased protection for the doctor and greater freedom of procedure in treatment. The speaker referred to the recent pronouncement of Mr. Justice McCardie, and added that difference arose, however, when it came to the best methods of securing the objects in view. While it was desired to remove the intervention of the judicial authority, safeguards must be preserved through inspection, registration, and control from the Board of Control. One of the most important results of the Royal Commission was that the Board, after considerable attack, had emerged with greater prestige than ever before. The proposed loosening of the shackles was in the interest of both patient and doctor. All the proposals which tended to accentuate judicial interference seemed to be in a retrograde direction. The profession must always stand for intimate relationship between doctor and patient. He grouped the possible courses of action into four : 1. The demand for the concession of witness-status for the certifying practitioner. This was passed at the Representative Body in 1924. 2. Strengthening the Lunacy Act to the end of warding off civil actions. The Royal Commission had proposed that the onus of proof should rest on the plaintiff and that action should not lie unless the plaintiff could satisfy a judge in chambers that there was prima facie ground for his case. The Committee wished to add to this recommendation the proposal that the judge in chambers should be assisted by a competent medical assessor. The Committee also supported the recommendation of the Commission that, where the justice was called on to sign a certificate, he should cease to be perfunctory and be compelled to take measures to satisfy himself that the practitioner had exercised reasonable care. 3. The establishment of a body of certifying Government official doctors. 4. That the profession should shelter behind public officers so that the duty of care should not lie upon it. The only justification for the idea of witness-status was that in a sense it could be held that the judicial authority was holding a court, but such a conception was in the interests of the patient and was contrary the profession's general ideas of progress in treatment of mental disorder. Complete immun for the doctor meant that he was not open to att even if he had not shown reasonable care. Un the common law of England all experts had to g reasonable care. The claim had been urged bef the Royal Commission by the B.M.A. representativ but the Commission had decided to advise protect of the doctor by the second method. As an ame ment had been put into the agenda of the Represen tive Meeting reiterating the demand for witn status, Dr. Langdon-Down emphasised the unreas ableness of going to Parliament, against the rec mendations of the Commission, to ask for relief fr the duty of reasonable care. (The amendment withdrawn subsequently.) He pointed out that witness status would not hold under the Urge Order where the justice was not called upon, under the few days' Provisional Order. There m be some protection to cover all the host of acti which doctors had to meet in which the witn status would not save them even though the jus was called in. The second method would co everything done under the Act and would go as as was possible without repudiating the duty of c The third method would mean that a doctor always to go to a relieving officer or public off before he could deal with these patients, w would be quite impossible in private prac Another amendment had suggested using a th of non-coöperation to enforce the profession's vi Dr. Langdon-Down thought it would be a mistak enforce any particular solution, particularly a moment when the public was so favourable to profession, as it might produce a situation different from that desired. (This amendment also withdrawn.) He thought doctors would get necessary protection if the recommendations of report were put into effect. He wished memorandum referred to Council, as it dealt many very delicate legal matters.

Dr. J. NEAL, who had withdrawn the two am ments from Hendon mentioned above, suppo Dr. C. O. HAWTHORNE in his amendment, w read :

That the Representatives thank the Lunacy Law Mental Disorder Committee for the memorandum o report of the Royal Commission on Lunacy Law and M Disorder, refer it to the Council, and request the Co to reappoint the Committee with instructions to whatever steps are possible to secure what the report c Royal Commission declares to be "fair," namely, tha medical profession should not be asked "to perform essential part under the menace of litigation which, e unsuccessful, may spell financial or professional ruin."

Dr. Hawthorne protested against the sugge that there was any desire in the profession to es responsibility for professional action duly taken. Commission had failed to find a single case of wro certification. He objected to giving approval printed document in general, as such things liable to come home to roost in particular.

Dr. Neal said that greater protection was esse but not absolute immunity. Deliberate negli should not be protected, but no action shoul possible without reasonable cause. Shifting the of proof to the plaintiff was excellent as far went and would very considerably modify the posi Medical assessors might prove very valuable, b was an experiment the worth of which only could prove. There still remained, however, a grave danger—viz., that a doctor might be proce against under the law of libel, not under the Lu Act at all. The certificate was medical evidence, w if given in a court, would be protected. He that certifying practitioners should not be subj to a living nightmare as they were at present.

Dr. W. GRIFFITH (Marylebone) said that his div had heard the views of its experts and unanim demanded complete protection. The menace ha been removed.

r. BONE urged the Representative Body to take opportunity of saying definitely what it wanted. ry doctor wanted protection, and the judges and ybody else were in agreement. The whole stion was how to obtain it, and that was the stion the meeting ought to answer. To send the norandum back was to burke an obvious duty. case for witness-status had been put as well as sible and fully discussed, and the Commission had rted that on grounds of public policy it was not ible. The interests of the profession were subary to the general interest. Under these circumnces the Representative Body must decide whether withdraw from its original position or whether to its back to the wall and demand witness-status nothing. The Committee did not think that shifting onus of proof was enough, but the choice of the lical assessor might prove a difficult one, as it ned that money would buy any opinion from some lical experts. How was it possible for an honest lical opinion to be given 10 or 12 years after the nt? One method of attacking the problem ht lie in preventing the profession from giving h evidence. He asked the meeting to turn down Hawthorne's amendment and put up something nite for discussion.

r. H. G. HAYNES (mid-Essex) emphasised the fact t the Royal Commission had dismissed the question witness-status and that before the next Representa- Meeting new legislation might be put into force. protection of the practitioner was not the only g in the report.

r. H. C. BRISTOWE (Bristol) recalled that at the e when the Act was being discussed the profession regarded the protection it afforded as very nearly plete; experience had proved that it was not. thought that witness-status should be demanded, n if it could not be obtained.

r. E. R. FOTHERGILL said that his experience that when a judge had the opportunity of using chnical assessor he did not take it. He thought suggestion, that the magistrate should certify the practitioner had exercised reasonable care, a most dangerous one. The first thing to urge that the patient needed treatment. It would most disastrous to bring the judicial authority any medical question. It had never been decided whom the doctor was responsible, whether to the ent or to someone who asked him to examine patient. If it was to the patient, then the ificate should be handed to him; if to the nds, then the doctor was open to a libel action. question ought to be plainly discussed.

r. A. NOBBS (Wandsworth) asked for an account hat occurred between the B.M.A. representatives the Royal Commission. The weak spot in the was that the magistrate, who knew nothing of hiatry, was required to protect himself, the ent, and the general practitioner.

r. D. ROXBURGH said that this was a battle royal een doctors and lawyers, and doctors should for complete immunity from all civil actions.

r. F. RADCLIFFE supported Dr. Hawthorne's ndment. He pointed out that if a doctor ined a recluse patient under the order of a istrate he was open to an action for assault and no redress. This case was not mentioned in the orandum. Nor was the single-care case. The demanded that the certificate should be signed he usual medical attendant, but then debarred from treating the patient any longer. Often the reason why this type of case was certified under e care was that he might be kept at home under ontinued care of his own doctor.

r. LANGDON-DOWN undertook to convey to the mittee the opinions expressed. The Committee, lly composed of general practitioners and others, discussed Dr. Hawthorne's views fully, but had been able to accept them. In speaking of the ce of litigation, Dr. Hawthorne had taken a graph from the report of the Royal Commission out its context. Dr. Langdon-Down accepted the amendment, as he himself desired that the memorandum should go to the Council for reconsideration and improvement, on the understanding that the last clause was not to tie their hands. The amendment was carried.

Dr. F. TEMPLE GREY (Marylebone) said that Dr. Hawthorne's amendment was not sufficiently precise. The doctors would do their case more harm than good by refusing to sign certificates and would be lacking in their duty if they tried to avoid this responsibility. The immunity Dr. Hawthorne had asked for was not imaginary but existed in Scotland and had existed in England. He moved:

That it be referred to Council to consider the desirability of urging upon the legislature that the judicial authority under the Lunacy Act of 1890 must assume full responsibility for the commitment of a person alleged to be of unsound mind, and that such judicial authority be either a county court judge or a magistrate with special qualifications, such as a medical barrister.

The people of these islands would only agree to detention under due process of law. It was only as the funds of medical defence unions became large that the magistrate ceased to admit this responsibility. It was important to press, not for what was vaguely called "witness status," but for the acceptance of responsibility by the magistrate, as in Scotland.

This was seconded by Dr. W. GRIFFITH (Marylebone), and Dr. L. D. PARSONS observed that this was the law in Ceylon. The motion was passed.

Dr. D. ROXBURGH then proposed:

That the Representative Body directs the Council to appoint a Committee for the further consideration of the report of the Royal Commission on Lunacy; and further directs the Council to secure on the Committee an adequate number of general practitioners on whom the responsibility of signing certificates under the Lunacy Acts mainly falls.

Dr. LANGDON-DOWN accepted this and it was carried.

Parliamentary Elections.

The Chairman of the Parliamentary Elections Committee (Dr. E. K. LE FLEMING) said that the most important place of all to make known professional views was the House of Commons. The Ministry of Health was not the House of Commons. Very few Members of that House even knew or understood what the B.M.A. was and stood for, and many had the most extraordinary views of its constitution. If a medical man became a Member of Parliament he generally developed rapidly into a politician and ceased to represent the views of the profession at large. In Sir Richard Luce the profession had a very valuable exception to this rule. This Committee of the B.M.A. had been allowed to languish. The Council had seriously considered winding it up, but at a recent meeting the trustees of the National Insurance Defence Trust had placed a sum of £1000 at the disposal of the B.M.A. Committee for the support of approved medical candidates for Parliament. The Council therefore recommended:

That the Council be authorised to accept the offer of the trustees of the National Insurance Defence Trust, and to adjust the composition and procedure of the Parliamentary Elections Committee accordingly.

That the Representative Body express the opinion that in view of the offer of the trustees of the National Insurance Defence Trust members be urged to contribute to the Medical Representation in Parliament Fund so that the volume of individual contributions to that fund shall reach a total at least equal to the promised contribution of the trustees of the National Insurance Defence Trust.

Dr. JOHNSON SMYTH supported these recommendations.—Dr. E. K. LE FLEMING then pointed out that the Association had no politics but it was extremely difficult to get party backing for medical candidates. This difficulty was less in university seats, where party feeling ran less high. He therefore proposed:

That the Parliamentary Elections Committee be instructed to pay special attention to the possibility of securing the election to Parliament of medical candidates for University seats.

These motions were all carried and the report approved.

Public Health Propaganda.

Dr. LEWIS LLOYD, Chairman of the Public Health Committee, proposed and carried :

(i) That medical practitioners should not give health lectures under the ægis of local authorities gratuitously; and (ii) that although the lecturer must in every case necessarily be approved by the local authority there is no reason why any particular class of practitioner should be excluded from delivering such lectures.

He also stated that the scheme of coöperation between the B.M.A. and the Society of Medical Officers of Health, agreed to in 1923, was under consideration. It had been decided that the offices of the Association and Society should keep each other advised in all matters relating to prospective public health appointments, and that the Society should make it clear to all its members that any action taken locally must be by and through the British Medical Association Division. In 1926 the Council had been instructed to consider how local branches of the Association could contribute to public health education. As a result of consideration of Sir G. Newman's memorandum on this subject, and of consultation with the Society of Medical Officers of Health, it had been agreed to suggest to the divisions that they approach their local authorities with a scheme for health propaganda work. This scheme, he said, would include lectures and cinema demonstrations on the obvious subjects of general medical interest, elucidation of local problems, visits to dairy farms, hospitals, holiday camps, and health exhibitions, and distribution of propaganda. The Society of Medical Officers of Health had proposed, he said, that its scheme for propaganda and that of the Association might be complementary if the divisions of the Association would interest themselves in the following proposal : The setting up by the Society of a committee to advise local authorities in reference to the education of the public and to promote health education work, the committee to consist of 12 members representative of the obvious State and municipal bodies concerned, and to invite medical officers of health to secure subvention from their councils. The Society proposed, if adequate financial support were forthcoming, to appoint for trial a half-time assistant secretary for propaganda purposes.

Dr. LEWIS LLOYD moved that the report and proposal should be approved.

When the report had been approved, Southport proposed :

That the Council be asked to arrange with the Society of Medical Officers of Health that, in areas where cases of small-pox are known to exist, special propaganda work for vaccination should be organised.

Dr. F. J. BAILDON reported an anti-vaccinationist propaganda in Southport and carried his motion. Dr. LEWIS LLOYD said that as a profession doctors were behindhand in making themselves acquainted with the latest information about small-pox statistics.

Poor-law Reform.

While Dr. H. B. BRACKENBURY, as Chairman of the Poor-law Reform Committee, was proposing the adoption of this part of the report of Council, the chair was taken by Dr. C. O. HAWTHORNE.

Dr. Brackenbury said that in June the Ministry of Health had withdrawn their previous proposals, approved by the Representative Body last year, and substituted an entirely new set. These were tentative, and not yet in the form of a Parliamentary Bill. The cardinal principle with which the Association was concerned was the unification of all forms of health administration within the local authority. The new proposals did not give as good an opportunity for this as did the old ones, except in the areas known as county boroughs. Instead of boards of guardians being abolished, they were to persist under more convenient areas and forms of election. The Association had insisted that it was desirable for a health committee to be empowered to coöpt members of the medical profession or others interested in health administration. Educational bodies had the statutory obligation thus to coöpt. The new proposals allo county councils, boards of guardians, and commit of management of Poor-law hospitals to coöpt pers experienced in the administration of the Poor-l It was much more important to have on these c mittees people experienced in hospital administrat and pressure should be brought to bear in direction. In reply to a question, Dr. Brackenb explained that under the new proposals Poor- institutions would be transferred to the cou council and managed by special committees, t thirds appointed by the Council and one-third by board of guardians.

National Health Insurance : Ophthalmic Clinics

Dr. H. G. DAIN, Chairman of the Insurance A Committee, said that agreement had been reac over several matters which had caused anxiety. future a patient wishing to change his doctor wo have to give a fortnight's notice and submit insurance card to be stamped. This would prev his leaving hurriedly in a " huff," and would do a with canvassing for medical cards. It was also ho that a satisfactory disciplinary scheme would soo proposed. Trouble had been caused by the very la number of claims for treatment under ophtha benefit. Dr. Dain then proposed :—

That the Representative Body approves the princip providing ophthalmic benefit through clinics in large ce as an arrangement auxiliary to the existing schem attendance by ophthalmic surgeons privately, subjec the arrangements under which such clinics are establ being approved by the Council.

He said that this was a departure from a prin to which the Representative Body was very fi wedded, that of extending consultant services on lines of private practice. He warned them that was the first special service included in Nati Health Insurance benefit, and considerable w was likely to be given to it in future arguments.

Dr. R. WALLACE HENRY (Leicester) remi them that the approved society now decided wh the patient should go to an ophthalmic surgeo an optician. When the optician was unable to e with the case he sent a certificate to the societ be forwarded to the ophthalmic surgeon. societies were saying that it was only financial cir stances which made them send patients to opti first, and the number was growing so large th was becoming impossible for them to pay guinea fee for the surgeon. As a result, 70–8 cent. of insured people were sent direct to opti Some of the societies had set up ophthalmic c already, and some of the younger oculists had acc appointments to them. If the Council had pe sion to go into the matter, it might be possi formulate a satisfactory scheme for providing thalmic benefit through medical men to pract the whole insured population. If this could be the weight of opinion in favour of sending pa to opticians would be turned round, and the majority of people would go to the oculist. G. W. KENDALL (City) supported the motion said the change of policy was of great impo to the whole profession. Ophthalmic surgeons in favour of it. Dr. E. J. PRIMROSE (Glasgow that the wording of the motion would give r the impression that a new and different princip being accepted. The principle involved was t giving private attendance to insured patients modified fee. He suggested amending the m in this sense. The great reduction in fee in in the clinic arrangement was only admissible society really was in an impoverished state should not be allowed to become universal.

It was agreed to substitute " suggestion " principle " in the first line of the motion a add " in certain circumstances " after " centre the second line, Dr. Dain accepting this amend

Dr. P. MACDONALD (York) warned the m not to blink the fact that clinics had come t and would be extended in other directions.

ost of the work under the Insurance Acts would be ne on clinic lines.

Dr. E. E. BRIERLEY (Cardiff) said that the ophthalc surgeons of Cardiff took the report of Council to licate that the clinic cases would be those that d been to opticians first. To examine ten such ses in two hours would be impossible. They also nsidered that the already reduced fee was being ively diminished when they were expected to see ht or ten serious cases at 8*s.* 6*d.* per head. conded by Dr. J. D. WILLIAMSON (Cardiff), Dr. ierley proposed, therefore,

That the Council be asked to consider whether the number new cases should be eight rather than ten.

This was carried, as was also a motion by Maryle-ne:

That the Council be requested to urge the Ministry of alth to provide for extended benefits under the National alth Insurance Acts.

Dr. Dain said this had already been urged peatedly; it was a question of money and money ly.

Hospitals.

The Chairman of the Hospitals Committee, Mr. . S. SOUTTAR, moved and carried without discussion,

That where the remuneration of a consultant for regular riodic visits to a Poor-law hospital is on a salary basis, e amount of that salary should be a matter of arrangement tween representatives of the local medical profession and e appointing authority, but regard should be had to the nimum fees laid down at the annual representative meeting, 26, and/or to the basis of £2 12*s.* 6*d.* for consultant sessions not more than two hours, with an allowance for mileage ere necessary.

Mr. Souttar then said that the policy of the Asso-ation was that any payment a patient made in spital was for treatment and not for maintenance. certain paragraphs of the voluntary hospital licy appeared to weaken this position, he proposed at they be deleted. This was carried without scussion. He then proposed—

That specialist work in connexion with the treatment of tients suffering from mental disease in its early stages ether at hospitals or clinics should not be carried out by ole-time medical officers of public health or local govern-nt authorities, but on a part-time basis by medical practi-ners who have special knowledge of the subject, but who o not necessarily be devoting their whole time to such cial work.

This motion had called forth a strong letter of otest from the Royal Medico-Psychological Associa-n. Mr. Souttar said that the last thing the B.M.A. shed to do was to give the impression that they nted to exclude any group of medical men from eir proper work, but it was the declared policy of e Association that as far as possible medical work ould be carried out by private practitioners. Such rk should not be transferred from general practi-ners to those holding full-time appointments under blic authorities, but there was no wish to exclude ole-time men.

Dr. E. W. MASTERMAN (Camberwell) and Dr. J. W. LLESPIE (Belfast) proposed to amend the resolution inserting the word "necessarily" in the phrase hould not be carried out by whole-time medical cers," and to cut out the last phrase. The motion amended was accepted by the Chairman.

In proposing the remainder of the report under Hospitals," Mr. Souttar said that the hospitals had t the Association over the two points of difficulty—., that patients should take to hospital with them ers from their practitioners, and that hospitals uld be used as far as possible in a consultative acity.

It was agreed, on the motion of Salisbury,

That the Representative Body instructs the Council to sider the formulation of a middle-class hospital policy.

Contributory Schemes.

Dr. Fothergill then proposed on behalf of Brighton inclusive motion in reprobation of the inroads ng made into private medical practice "by the contributory schemes which are springing up all over the country." He reminded his hearers of the evils of the old club practice days, and said that a similar position was now developing in the hospitals. Doctors were told to make their money out of the kudos of being on the staff. There was no satisfactory income limit for hospital patients, no representation of the doctor on the club scheme, and no free choice of doctor by the patient. There were now 120 of these organisations in existence, and 90 of them had definite contracts with the hospitals, entirely opposed to the B.M.A. policy. Soon the hospitals would be arranging for the specialist to see the patient in his own home. A man who paid a guinea a year to insure his house against fire was not a pauper when his house was burnt down. It should be held that when the clubs had paid premiums the patients were not objects of charity.

Mr. Souttar said the proposal had his sympathy and the matter was serious, but there was this difference from club practice: that the hospital practitioners were unpaid for their services. It was difficult to get hospital staffs to take any interest in the matter. As these proposals covered a great deal of ground he suggested their being referred to Council. Dr. Fothergill agreed to this.

Naval and Military.

Sir RICHARD LUCE, chairman of this committee, said there had been an increased allowance this year to officers serving in India, but efforts to make the grant retrospective had failed. There had been difficulty in getting enough recruits, for which there was now no real reason. The arrangement that men might take one year of their service in hospital was bearing good fruit.

Earlier in the meeting Sir RICHARD LUCE had proposed and Dr. F. GOODBODY seconded,

That the Representative Body of the British Medical Association, assembled in Edinburgh, congratulates Captain C. H. Vernon, a member of the Association, on having won the King's prize at Bisley for the year 1927.

This was carried with applause.

Dr. J. F. WALKER, chairman of the Charities Committee, presented the report under that heading.

The reports of the Scottish, Welsh, and Irish Committees were approved without discussion.

The secretary announced that Dr. E. A. STARLING, of Tunbridge Wells, had been elected to the Council in place of Dr. Arnold Lyndon, who, on his election to the deputy chairmanship of the representative body, became *ex officio* a member.

The following were elected to Council by the representative body: Dr. R. Langdon-Down, Sir Richard Luce, Dr. F. J. Baildon, Dr. J. A. Macdonald, Dr. J. W. Bone, Dr. H. G. Dain, Dr. C. E. Douglas, and Mr. W. McAdam Eccles.

Cordial votes of thanks were passed to the local hosts who had helped to make the stay of the representatives so pleasant, to the staff, and to the chairman, Dr. Brackenbury, who, in closing the meeting, invested his successor, Dr. C. O. Hawthorne, with the badge of office.

ANNUAL GENERAL MEETING AND PRESIDENT'S ADDRESS.

The ninety-fifth annual general meeting was held on Tuesday, July 19th. Mr. R. G. Hogarth, retiring President, took the chair, and inducted his successor, Sir Robert Philip. The President-elect, Sir Ewan Maclean, was introduced and promised the hospitality of Cardiff for 1928. The Chairman of Council, Sir Robert Bolam, proposed a vote of thanks to Mr. Hogarth, and said he had proved an astonishingly able and vigorous President. The meeting then adjourned till 8 P.M., when the President delivered in the Usher Hall, Lothian-road, the address which appeared in our last issue. Dr. Fergus Hewat, honorary

local general secretary, presented to the President delegates from the Canadian, American, and China Medical Association, and a large number of foreign and overseas guests. The Sir Charles Hastings Clinical Prize was handed to Dr. J. S. Manson, of Warrington. A vote of thanks to the President was proposed by Dr. C. O. Hawthorne and seconded by Sir Alfred Ewing, Principal and Vice-Chancellor of the University of Edinburgh. Afterwards a very large gathering was received by Sir Robert and Lady Philip in the McEwan Hall. Those who wished to dance went on from there to the Palais de Danse, Fountainbridge.

ANNUAL DINNER.

The annual dinner, held on July 21st in the Music Hall, George-street, was more largely attended than ever before. Sir Robert Philip, who presided, was supported by the Lord Provost of Edinburgh, Lord Dawson of Penn, the Sheriff of Edinburgh and the Lothians, Earl Russell, Lord Sands, the Principal of the University, the Moderator of the Church of Scotland, the Presidents of the Royal Colleges of Physicians and Surgeons of Edinburgh, the chief officers of the Association, and others. The President was escorted to the dais by four pipers from the Edinburgh postal band, and later in the evening the haggis was accorded the same honour. Lord Dawson, who proposed the health of the Imperial Forces, spoke of the close association of the warrior and the doctor from Homeric times down to the recent war. He mentioned particularly the magnificent war service of the drifters. Rear-Admiral Bowring, in acknowledging the toast, referred to the great reduction in mortality and morbidity rates among sailors in recent years, and expressed the gratitude of the Services for the work of the medical profession. Economy in the navy, he said, was not the feeling of any responsible body of people. The toast of "The City of Edinburgh" was proposed in French by Prof. Tuffier, of Paris, who complimented the city on its beauty and its association with the great name of Lister. The Lord Provost, in replying, remarked on the pride which Edinburgh had always felt in its medical school. The 600-years-old alliance between France and Scotland had, he said, left its impress on these nations; thrift was a feature they had in common. Lord Sands, toasting the Association, described a visit to the island of Cos, which had served as a base hospital in the Trojan war. His own earliest associations with the Edinburgh medical school were coupled with the name of Dr. James Gregory. Medicine had, he feared, lost some of its picturesqueness since that time. Sir Robert Bolam's acknowledgment of this toast was, he said, the last act of a retiring executive chairman. Whether holding office or not, he would find some way of working for the honour and interests of the medical profession. The President of the Canadian Medical Association, Dr. H. S. Birkett, proposing the health of Sir Robert Philip, reminded him that McGill University had been founded by four Edinburgh graduates.

LISTER CENTENARY CELEBRATIONS.

Wednesday, July 20th, was the day specially set apart for the commemoration of Lord Lister. The University of Edinburgh held a reception in the afternoon in the Old Quadrangle. The upper library of this building was devoted throughout the week to a fine display of personal and professional relics of Lister, as well as copies of old surgical woodcuts, engravings of Edinburgh medical worthies, and other objects of interest. In the evening the McEwan Hall was almost filled with the varied colours of academic robes and evening dress for the principal celebration. The chair was taken by the Earl of Balfour, who delivered an eulogy of Lister. He remarked on Lister's enduring affection for the two Scottish Universities which had given him his opportunity. Lister would have been a great surgeon at any period of the world's history, but he owed his unique eminence to his association with Simpson and Pasteur. Without chlorof he could not have developed his surgical techni and without knowledge of the action of putrefac bacteria he would not have directed his atten towards the means of combating those enemies the surgeon. The services which Pasteur, Simps and Lister had rendered to mankind could not estimated; they were outside all machinery comparative valuation.

Sir William Watson Cheyne described the c trast between surgical wards before and after the w of Pasteur and Lister and went on to say that th had been nothing accidental about Lister's wo As a dresser he had been horrified by a severe break of gangrene in the wards and had never gotten it. Pasteur's work had given him suffici solution of the mystery to enable him to deve a technique for the prevention of wound sep It was a striking example of the practical value pure science. Lister's contributions to the ra expansion of surgery were obscured by the greatn of his antiseptic work. He was a pioneer in exp mental pathology.

Prof. Tuffier said it was not too much to cla that the discoveries of Pasteur and Lister, appl by surgeons and physicians for 50 years, had sa as many lives as there were people in all the wo He offered to the memory of Lister the loyal gratit of all French surgeons.

Prof. Harvey Cushing delivered the address "Emancipators," which was printed in full in last issue.

Prof. John Stewart (Halifax, N.S.) said t simplicity was the keynote of Lister's life and wo he loved music and children and had a keen se of humour. A certain aloofness was due to shyne he was anything but cold and indifferent at he He always carried about with him an air of otl worldliness, but the main depression clouding last years was chiefly due, he thought, to a se of loneliness, a mistrust of modifications of routine which were arising and the lack of recogni of his fundamental work in pathology.

Lord Balfour announced that the prize for best essay on "The Influence of Lister on Surge had been awarded to Mr. George W. Gale, and t the Royal Colleges of Edinburgh had conceived scheme of erecting an institute to the memory Lister.

EXCURSIONS AND SOCIAL AMENITIES.

The Sunday excursion for representatives took form of a long motor tour through the Scott coun including a view over Dryburgh Abbey. The p was entertained to tea at Floors Castle, the sea the Duke of Roxburgh. The sun shone and visibility was so good as to make the magnifi views from "Scott's point" and Soutra Hill finer than usual. On Monday evening "The Doct Dilemma" and "Rob Roy" were played to houses. There was dancing at the Palais de D each night, and the number of special excursion places of historical and æsthetic interest was ex tionally large. By special invitation the R Scottish Academy was open to members of Association for a private view on Thursday eve while for others Mrs. Kennedy Fraser and her p gave a special concert of Hebridean music. the President and members of the Edinburgh Br of the Association received a large number of vis at the Palais de Danse, where Highland and Low dancing was kept up till a late hour. A novel plea was the reception by the Lord Provost and m trates of the City of Edinburgh at the Sco Zoological Park. The rain held off, and visitors able to spend the long northern evening stro round this beautiful menagerie. An after reception was held on Thursday by the Ladies' A ciation at Inverleith House in the Botanical Gar and another on Friday by the Royal Medical So at its house in Melbourne Place.

EXHIBITION OF INSTRUMENTS, DRUGS, FOODS, AND APPLIANCES.

The usual exhibition was held in the Waverley Market from July 18th to the 22nd, and was larger than ever before. The market provided a light and spacious hall, and the abundance of flowers was a particularly pleasant feature. At the official opening on Tuesday, July 19th, the chairman of the Representative Body, Dr. H. B. Brackenbury, referred to the value of publicity and introduced Sir Robert Philip, President-elect of the Association, who declared the exhibition open. He commented on the fundamental necessity to medicine of the correlation of the vision of doctors and experimenters with the ingenuity of technicians. That happy union had been notably exemplified during the past century by the two firms of J. F. Macfarlan and J. Gardner and Son, both of which were exhibiting this year and both of which had been associated with Lord Lister. An account of the stands will be given in a later issue.

Reviews and Notices of Books.

COMPARATIVE PHYSIOLOGY.

The Genetics of Sexuality in Animals. By F. A. E. CREW, M.D., D.Sc., Ph.D., Director of the Animal Breeding Research Department and Lecturer in Genetics in the University of Edinburgh. Cambridge University Press. 1927. With 37 text figures. Pp. 188. 10*s.* 6*d.*

Dr. Crew writes very good books. Himself an active experimenter, he also has the gift of exposition, and he gives here in moderate compass a clear and interesting outline of a subject to which few people are indifferent. The first part describes the chromosome mechanism of sex determination which has been unravelled during the last 25 years. This he regards as now being settled, at any rate for a time. He passes on to discuss the physiology of sexual differentiation, the means that is by which the chromosome composition of an individual gains its expression in secondary sexual characters. All the cells of the body are either male or female according to their equipment in sex chromosomes. In insects this leads directly to the development of the sexual characters which constitute the maleness or femaleness of an individual; sex glands take no part in the process, and a male caterpillar will develop into a male moth whether it is left alone, castrated, or has an ovary implanted in place of its testis. But in mammals, as everyone knows, the sex of an individual depends not only on the sex chromosomes of the cells of which the body is composed, but on the presence of functional sexual glands, and in a vaguer way on the thyroid and other endocrine organs. The great problem which now lies open for inquiry is the nature of this connexion between the sex of an individual and the sex of his cells, and Dr. Crew's discussion of the facts at present available and his indication of the lines along which progress may be looked for is very suggestive. In one form or another he makes good deal of use of Dr. R. Goldschmidt's idea of time scale, which naturally leads on to chapters on sex reversal and intersexuality. Medical men would have been glad of a discussion of the sexual effect of the adrenal tumours which come within their province; the subject has been clarified lately by the demonstration that femaleness may be regained the surgeon removes the growth. Finally, there is chapter on the sex ratio which no one will read without wanting to find out why males die more easily than females from early fœtal life onwards. We hope that the recent extensions of his department at Edinburgh will enable Dr. Crew to find the answers to some of the many questions which he raises. Useful bibliographies are included.

THE CLINICAL INTERPRETATION OF THE WASSERMANN REACTION.

By ROBERT A. KILDUFFE, A.B., A.M., M.D., Director of Laboratories, Atlantic City Hospital; City Bacteriologist Atlantic City, N.J., &c. Philadelphia and New York: Lea and Febiger. 1926. Pp. 203. $2.50.

THE author considers the whole question of the Wassermann reaction, beginning with its basic principles. He deals with the many problems that confront clinician and serologist alike, such as the fact that a W.R. may be positive one day and negative a few days later. There is adequate and interesting discussion on the complement-fixation reaction in pregnancy, and in neurosyphilis. A whole chapter is given up to non-luetic conditions giving false positive reactions; an equally useful chapter treats of false negative reactions. Dr. Kilduffe holds, as do all good pathologists, "that the results of the test must be interpreted in conjunction with all the other findings of the case at hand." Considering the W.R. as a test of cure, the writer emphasises that fact that a negative reaction is merely an indication of the condition at the moment, "bears no guarantee for the future, and holds no promise of permanency." Dr. Kilduffe notes that for any complement-fixation report to be of value, the test must have been carried out by a worker with extensive training and experience.

It is difficult in a short review to show just how good, and how well worth reading, is this little book.

PYELOGRAPHY: ITS HISTORY, TECHNIQUE, USES, AND DANGERS.

By ALEX. E. ROCHE, M.A., M.D., M.Ch. Camb., F.R.C.S. Eng., Chief Assistant to a Surgical Unit, St. Bartholomew's Hospital. London: H. K. Lewis and Co., Ltd. 1927. Pp. 118. 9*s.*

THIS little book, which is founded on the somewhat slender basis of 58 personally observed pyelographies, draws largely on the experience of other observers, notably Braasch, and will prove useful to those who are learning to practise this branch of diagnostic technique. Beginning with a short account of the history of pyelographic examination of the kidneys, the author proceeds to describe the method, the solutions used, and some of the difficulties which may be met with. A series of chapters follows, in which the value of pyelography in relation to the various forms of renal disease is discussed, and the deductions arrived at are illustrated by plates.

As a well-arranged summary of the work which has been done on its subject, Mr. Roche's book has its value; the author does not claim to add to our knowledge. An introduction is contributed by Sir John Thomson-Walker.

OPHTHALMOLOGY.

Applied Refraction. By HOMER ERASTUS SMITH, M.D., Assistant Surgeon, Manhattan Eye, Ear and Throat Hospital. New York: William Wood and Co. 1927. Pp. 131.

THE first thing that strikes us about this book is the entire absence of any but the most casual reference to the method of retinoscopy which to refractionists in this country has long served as their sheet anchor in the preliminary examination for glasses. Except for a few pages on the ophthalmometer, an expensive instrument which is admittedly not infallible, this author relies entirely on subjective tests. This is the more surprising in that he insists on the need for cycloplegia in any patient who has evidence of eyestrain, and this, he says, "be he seven or seventy." Indeed, according to him, in the later decades of life with a small residuum of focusing power left, the need for cycloplegia is even more urgent. This need he attributes to the unequal action of the ciliary muscle in its several meridia—a segmental action which may

partially counteract an astigmatism only revealed when the accommodation is paralysed. That this segmental action exists is not generally admitted, though in support of the theory that it does a physiological experiment of Hensen and Voelkers (the latter name misprinted in this book) may be cited. Textbooks on refraction are generally discreetly silent on this point, though by their insistence on the necessity for complete cycloplegia for the correction of small astigmatic errors they implicitly support the theory that segmental accommodation is possible. An apparatus for testing the visual acuity under varying degrees of illumination is illustrated in Dr. Smith's book, and this should be useful, not only for testing the light sense, but in connexion with the prescription of tinted glasses for patients unusually sensitive to glare. The cyclophoria which sometimes is troublesome when oblique cylinders are prescribed is discussed. The relative advantages of different forms of bifocal lenses are pointed out, and there is a final chapter on the cosmetic value of glasses. We cannot recommend this little book as a complete guide to the art of refraction. At the same time anyone engaged in this work will find it worth reading, since it contains information and advice on many practical points which are not ordinarily alluded to in the text-books. Its unconventional style is a further recommendation.

Saving Eyesight after Mid-life. By J. HERBERT WHITE, M.D., Instructor in Ophthalmology in the Harvard Medical School, Cambridge (Mass.). Harvard University Press. 1927. Pp. 48. 4*s.* 6*d.*

THIS little book is one of a series termed "Harvard Health Talks," and is addressed to the general reader and more especially to the middle aged. It is principally occupied with a popular exposition of glaucoma, and informs readers of the insidious nature of that disease in its chronic form. One-third of all blindness in America arising after middle life is said to be due to this disease, and the chief purpose of the book is to warn the public that periodic examination by an oculist is necessary even though vision may be apparently normal, and to reassure them as to the chances of a permanent good effect of an operation undertaken in time.

DISEASES OF THE DIGESTIVE ORGANS.

Fourth edition. By CHARLES D. AARON, M.D., F.A.C.P., Professor of Gastro-enterology in the Detroit College of Medicine and Surgery. Philadelphia: Lea and Febiger. 1927. Pp. 1964. $11.

THE new edition of this American text-book preserves the general character of its predecessors. The book is too verbose to make a strong appeal to many English readers, but it is a merit that some mention, if only a brief note, is made of nearly every subject that can in any way be associated with the alimentary canal. The author gives no description of phytobezoars, Snapper's test for porphyrins, or the blood-sugar curves after lævulose feeding in cases of hepatic deficiency. But we have no doubt that these minutiæ will appear in future editions. The printing and illustrations are excellent.

JOURNALS.

JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXX., No. 3, July, 1927.—Interference Phenomena in the Action of Chemotherapeutic Agents in Trypanosome Infections, by C. H. Browning and R. Gulbrausen (Glasgow). Parafuchsin will kill *T. brucei* in mice: so will trypaflavin. But trypaflavin will not act in animals which have previously received a non-sterilising dose of parafuchsin. The therapeutic action of other substances—e.g., arsacetin—is also interfered with by parafuchsin.—The Titration of Scarlet Fever Antitoxin in Rabbits, by H. J. Parish and C. C. Okell (Beckenham). It is difficult to measure the antitoxic value of sera prepared with the scarlet fever streptococcus by their capacity to neutralise toxin in animals, but satisfactory titration can be achieved by testing their efficacy to protect rabbits against the septicæmia produced by the streptococcus itself. The values thus obtained show close agreement with human Schultz-Charlton and therapeutic tests.—Osteoclastoma (Myeloid Sarcoma) of the Human Female Breast, by H. J. B. Fry (London). A case of this rather rare tumour containing sarcomatous fibrous tissue, cartilage, osteoid tissue, and giant cells of myeloid type, with a good discussion and account of the literature.—A Statistical Study of Relapse in Enteric Fever and Erysipelas, by M. Young (London). Working on data from the Belvidere Fever Hospital, Glasgow, it appears that relapsing cases do not differ from non-relapsing cases in the duration of or degree of febrile disturbance in the primary attack. The relapse is on the average about half as long as the primary. The interval between primary and relapse tends to be longer as the primary attack is longer, and there is a slight relationship between the severity of the primary and that of the relapse.—A New Design of Porcelain Filter, by C. E. Jenkins (Salford). Adapted to filter a few c.cm. of liquid with very little loss.—Diphtheria Bacilli in Bile, by J. McCunn and A. M. L. Greaves (London). Pure cultures of *Corynebacterium diphtheriæ* were obtained from an acute cholecystitis at operation.—Cross Immunity with Rat Tumours, by S. Russ and G. M. Scott (London). Rats inoculated with tumour cells killed by X rays show afterwards a considerable degree of resistance to the implantation of the same and also of some other tumours.—Microscopic Evidence of the Different Manner of Clumping of Motile Bacteria with Somatic and Flagellar Agglutinins, by J. A. Arkwright (London). With flagellar agglutinin the bacilli are immobilised; with somatic agglutinin the free flagella continue to move the adherent bacilli.—Lamb Dysentery, by T. Dalling (Beckenham). Toxin-antitoxin mixtures given to the ewes reduces the lamb mortality from 8 to 0·9 per cent.; anti-welchii serum given to the lambs reduces it from 16 to 0·2 per cent.—Seasonal Variation in Pneumococcal Virulence, by J. F. Gaskell (Cambridge). The virulence of laboratory cultures regularly falls in the summer and reaches its maximum in the pneumonia season, December to April.—The Determination of Virulence of Pneumococci Freshly Isolated from Human Lesions, by C. H. Whittle (Cambridge). A few subcultures on agar or egg do not alter the virulence.—Demonstration of *Spironema pallida* in the Nervous System, by G. W. T. H. Fleming (Dorchester). Jahnel's method is tedious but gives good results.—A Case of Unrecognised Cancer of the Breast, by C. J. Polson (Manchester). A small scirrhous cancer of the right breast gave rise to large masses of growth in the abdomen apparently via the lymphatics of the thoracic wall and the umbilicus.—A Qualitative Chemical Differentiation of Thyroid Secretion from Thyroid Colloid, by G. S. Williamson and I. H. Pearse (London). The secretion of the active adenoid tissue contains no biological iodine as colloid does.—Adenocarcinoma of the Ovary in a Hen, by J. Gordon and F. C. Happold (Leeds).—A Rapid Method of Examining Tissue Microscopically for Malignancy, by B. T. Terry (Nashville, U.S.A.). Thick freehand sections are stained on one side only with polychrome methylene blue.—Proceedings of the Pathological Society of Great Britain and Ireland.—This issue of the journal contains a portrait of A. Balles Lee, some extra copies of which may be had from the editor at 17, Loom-lane, Radlett, Herts.

BIRTHDAY HONOURS.—In the list of recipients of Birthday Honours published in THE LANCET of June 11 (p. 1247) we regret the omission of the name of Alfred Geddes Tresidder, Major, I.M.S., who was appointed a Companion of the Indian Empire. Major Tresidder is surgeon to H.E. the Governor of Bombay, and aural surgeon to the Gokuldas Tejpal Hospital, Bombay, and the Sassoon Hospital, Poona.

THE LANCET.

LONDON, SATURDAY, JULY 30, 1927.

LUNACY LAWS AMENDMENT.

A LEADING article in the *Times*, aptly entitled "The Lunatic at Large," drew public attention recently to the need for lunacy law reform. This article elicited a congratulatory letter from Dr. J. S. RISIEN RUSSELL, in which he conveyed the suggestion that medical practitioners "ought not to be vested with their present powers, but that they should be required to appear before a judicial authority and give evidence on oath as to the grounds for certification, as is required in any other class of case in which a doctor has to give evidence." Dr. C. O. HAWTHORNE, Chairman-elect of the Representative Body of the British Medical Association, said that the sole "power" that a doctor possesses in these matters is to give a written opinion or certificate to the effect that in his judgment the patient is of unsound mind and requires to be restrained either in his own interest or in the interest of the community. When such a certificate is placed with other relevant documents before the proper judicial authority (a specially selected magistrate) it is open to that authority to make or not to make an order for the patient's detention. It is the magistrate, not the doctor, who has the power to restrain the patient. The present power vested in the doctor is the signing of a professional certificate; if this is taken away every case of certification will become a judicial inquiry with copious evidence from experts and with corresponding expense and waste of professional time. Already, under the Act of 1890, the magistrate can require the certifying medical practitioner and any other witness to appear before him and give evidence on oath. The machinery of Dr. RISIEN RUSSELL'S proposal therefore exists if the magistrates consider that the interests of the patient or the public require its operation.

At the meeting of the British Medical Association the Section of Mental Diseases held a discussion jointly with the Royal Medico-Psychological Association on the recent report of the Lunacy Commission. This was opened by Dr. G. M. ROBERTSON, President of the Royal College of Physicians of Edinburgh, whose words as an ex-president of the Association and a leading psychiatrist carried weight with the meeting, as they had previously carried weight with the Royal Commission responsible for the Report. Dr. ROBERTSON found that the Provisional Treatment Order, the second of the procedures recommended in the Report for the involuntary treatment of mental cases, was open to serious criticism in that the signature of one doctor alone was required. The doctor would often be a general practitioner, and might possess little experience in the treatment of mental cases, but the procedure was to be legalised by the intervention of a justice of the peace who would have no medical experience whatever. He held that the addition of the legal authority in no way served the interest of the patient, laid stress on the absence of proved cases of improper detention as taking away the argument for the intervention of the justice, and urged that for the purposes of the Provisional Treatment Order the justice of the peace should be replaced by the Board of Control. Several speakers on the same and other grounds favoured the elimination of the judicial authority unless it were possible to select magistrates with knowledge of the subject, and to provide through local authorities specialists to assist the general practitioner. Dr. RISIEN RUSSELL welcomed the Provisional Treatment Order as supplying the medical profession with a claim for protection, and thought that the examination of the patient by a legal authority would be an advantage; if the justice had no medical training he would view the matter from a standpoint different from the medical one. This argument was countered by an explanation from Earl RUSSELL, a member of the Royal Commission on Lunacy Reform, who interpreted the recommendation of the Report as the introduction of a pure formality to meet public apprehensions which must prevail with the legislature. He pointed out that a vast body of uninformed and uneducated public opinion regarded doctors as too ready to certify, and, while it was needless or undesirable for the justice in these circumstances to have medical knowledge, the part he was asked to play was still useful, his duty being to see, and simply to see, that due care had been taken in the patient's behalf, and that all the legal papers were in order. But Earl RUSSELL looked also at the Board of Control as the real safeguard, and so came into line with the view that involuntary treatment was not an infringement of a patient's liberty to be compared with detention in other circumstances. This valuable discussion closed without any formal summing-up or resolutions, but its general outcome was, in spite of the critical remarks here alluded to, an expression of satisfaction with the Report. The objections to the introduction upon the scene of the justice of the peace for the main part were based upon the views of clinicians that any circumstances which embarrassed the rapid commencement of treatment in respect of early mental disease ought to be anxiously avoided, and it is to be hoped that ultimate legislation will reflect this view.

It is a fallacy to suppose that the proceedings under the Lunacy Act are or can be entirely assimilated to other judicial proceedings. The grievance of the certified patient, which takes the form of actions such as Harnett *v.* Bond or De Freville *v.* Dill, is that he has wrongfully been deprived of his liberty. There can be no analogy to the common law action for damages for wrongful imprisonment. In the nature of things lunacy proceedings have the essential peculiarity that the lunatic cannot conduct anything like a defence to the allegation of lunacy. In every other form of judicial proceeding anyone in the position of a defendant is entitled to a clear statement of the allegations made against him, and is entitled to make his reply thereto. In lunacy proceedings this is impossible; moreover, considerations of urgency seldom permit the dilatory and protracted preliminaries of ordinary judicial actions. But if the analogy of lunacy cases to ordinary judicial trials cannot be pressed, it remains the fact that doctors who certify a lunatic are no more than witnesses who supply evidence upon which—as in ordinary criminal or civil trials—a judicial authority makes up its mind. At present the medical practitioner is being asked to certify at the risk of an unlimited personal liability in damages—a threat or penalty to which no other kind of witness is exposed. This is the point at which the lunacy law must be reformed if the country does not desire to see doctors deterred by a series of adverse verdicts from volunteering their evidence in future. The medical

profession has nothing to reproach itself with unless it be the fact that medical science has not yet surmounted the almost impossible obstacles in the way of evolving a standard definition and standard tests of insanity. If such tests were available the certifying doctor who had applied them might at least feel more safe from ex-post-facto criticisms launched with the support of members of his own profession.

THE NEW DIPLOMA IN BACTERIOLOGY.

THE Senate of the University of London have instituted an academic diploma in bacteriology, and the London School of Hygiene and Tropical Medicine as we recently announced, have, as from Oct. 4th next, provided a full-time course in advanced bacteriology covering one academic year. Bacteriology thus takes its place as a recognised subject of post-graduate study, and this recognition cannot fail to alter materially the status of an important branch of science. Technological study of bacterial life, whether in its relation to epidemiology, to agriculture, to brewing, or to the preparation of leather, has prepared the way for the study on its own account of the life history of one of the most interesting groups of the vegetable kingdom. Such study is overdue. Pathological bacteriology is already hampered by the limitation of our knowledge on fundamental bacteriological matters, but the lacuna is not felt only by medical science, and entrance to the prescribed course is not to be confined in any way to those possessing a medical qualification. Such limitation would indeed be altogether undesirable, for though the paternity of medicine is clearly stamped on the growing science, it has already advanced well beyond parental control, and must set up house for itself. The diploma is open to graduates in medicine, science, or pharmacy of London or of any other approved university. Registered medical practitioners or other non-graduate students who have obtained a qualification and undergone a previous training which, in the opinion of the University, has fitted them to profit by the course, may be admitted after individual approval. At the same time the University has recognised that the training necessary for a medical bacteriologist differs in essential respects from that required by a student who proposes to apply his knowledge of bacteriology in some other direction, and the course of study, as well as the examination for the diploma, is divided into two parts. In the first the student will be concerned with bacteriological principles and with general technique. In the second he will study the application of these principles to clinical medicine, to hygiene, or to industry, as the case may be. Each student will be required to select one of these three special branches of study when entering for the course. It is probable that the teaching of applied bacteriology will, in time, be undertaken by different schools of the University whose staff and equipment enable them to deal effectively with particular aspects of this diffuse and widely ranging subject. Now that a start has been made, facilities will inevitably grow with the demand, but in the immediate future it seems likely that the majority of the students will be concerned with the application of bacteriology to medicine or hygiene, since facilities for the teaching of such students are already available.

All those who are concerned with medical science will, we think, welcome the advance which has been made. The provision of adequate facilities or study in London was the first essential step, but no one familiar with medical education will dispute that the creation of an academic diploma is a natural development, in the absence of which the attempt at serious teaching might well have been abortive. If a post-graduate student is to devote a complete academic year to the study of his subject, it is right that he should receive some mark of his attainment upon the satisfactory completion of his course, and though we all recognise the faults and limitations of the examination system, a satisfactory substitute has yet to be found. With the London diploma following so soon upon the similar diploma at Manchester, it will not be long before every applicant for a bacteriological post will be expected to present evidence of adequate training in his subject. In this connexion we would urge the extreme importance of maintaining a high standard of attainment. It is an altogether mistaken view that a diploma course is, of necessity, in some way inferior to a course leading to a degree. A course of instruction can be anything that teachers and examiners like to make it; the higher the standard set, the greater will be the attraction to the best type of student. London is the natural home within the Empire of serious post-graduate study, and it is of the first importance that the distinction which it can confer should not be cheaply won. We note with satisfaction the regulation which states that a mark of distinction will be placed against the name of those candidates who show exceptional merit. The convention that candidates at a diploma examination should be dealt with as though they showed a dead level of attainment has done a good deal to stultify post-graduate study. The pass level, even a high one, falls short of academic distinction and the student who has done exceptionally well deserves to have that fact recorded.

Events of the last few years suggest that a renaissance of bacteriology is at hand, and at the moment the demand for skilled workers from various parts of the British Commonwealth has outstripped the available supply. The stimulus given by the academic recognition now accorded to the subject by the Senate of London University should presage a revival of interest in an essential branch of science. The London School of Hygiene and Tropical Medicine are to be congratulated on having so opportunely made provision for meeting the serious shortage of trained bacteriologists by establishing a course of study under Prof. W. W. C. TOPLEY, at No. 6, Gordon-square, in October next, instead of waiting for the opening of their new building. The temporary department should tide over a period which, it is hoped, will not exceed two years.

THE CAUSE OF ACROMEGALY.

IN diseases which are comparatively uncommon and run a long course it is unusual for an autopsy to be done under the direction of those who have observed the case over a long period. Special interest therefore, attaches to a recent monograph [1] in which Harvey Cushing and L. M. Davidoff record four cases of acromegaly, with complete clinical histories and post-mortem findings. Their observations are of considerable importance. As they rightly point out among the criteria essential to the definition of any disease as an entity is the association with it of definite histopathological changes in a certain organ or organs; and to be convincing these changes

[1] Rockefeller Monograph No. 22, 1927.

must in no case shrink beyond a certain minimum. In acromegaly it has been difficult to identify the morbid lesion which causes the distinctive overgrowth, the difficulty being due to the variable secondary symptoms of the malady and still more to its widespread pathological manifestations. The chief argument has centred round the ætiological rôle of the hypophysis, and a notable advance was made when H. M. Evans and J. A. Long [2] brought forward dependable proof that the hormone of growth, which alone can account for acromegaly and gigantism, is secreted by the epithelial portion of the gland, and almost certainly by the chromophilic cells of the anterior lobe.[3] Further evidence has been gradually accumulating from the examination of fragments of hypophyseal adenomata removed at operation in cases of acromegaly, and valuable information about the histology of the hypophyseal lesion has been obtained. From the examination of 35 such cases in Cushing's clinic, P. Bailey and L. M. Davidoff [4] showed that chromophilic cells containing distinctive granules are always found in such cases, whereas in the types of adenoma associated with non-acromegalic manifestations the cells are invariably chromophobe in character. The hyperpituitary conception of acromegaly has therefore considerable support, but much is still obscure. The post-mortem findings described in Cushing and Davidoff's monograph throw a considerable amount of light on the problem. The four cases were of different clinical types, and illustrate the kaleidoscopic nature of the disease. In one patient, a man of huge frame, the general splanchnomegaly and widespread changes in the endocrine series quite overshadowed the small hypophyseal lesion. In another, an acromegalic giant, the picture was dominated by symptoms due to the neighbourhood of the tumour. The two other patients were small. In one of them an enormous intracranial adenoma, unsuspected during life, was unasked by cardiovascular and diabetic symptoms, and autopsy revealed adenomata in many of the ductless glands. In the other, a woman who died from diabetic coma, the post-mortem findings were relatively insignificant and the hypophyseal tumour was small. The only constant findings in all the cases were the commonly recognised overgrowth of the mesodermal tissue, the less commonly emphasised and disproportionate splanchnomegaly, the more or less general polyglandular anomalies, accompanied by a tendency to adenomatoses, and a central hyperplasia (two cases), or an adenoma of the hypophysis (two cases). In all four cases the cells composing the lesion contained demonstrable acidophilic granules, and the authors believe that these features are always present in acromegaly. They state that extracts of the part of the gland in which these cells are situated are capable of producing, in an experimental animal, overgrowth not only of the mesoblastic tissues but splanchnomegaly as well, together with changes in the ductless glands comparable to those seen in acromegaly and gigantism. They consider that the anterior lobe of the hypophysis is the keystone of the endocrine arch, and regard it as almost certain that a hormone from its granular acidophilic cells is the cause of acromegaly and gigantism in man.

[2] Anatomical Record, Phila., 1921, xxi., 62.
Proc. National Academy of Sciences, Baltimore, 1922, viii., 38.
[4] Amer. Jour. Path., 1925, i., 185–207.

Annotations.

"Ne quid nimis."

THE SOCIETY OF APOTHECARIES AND THE TEACHING OF MIDWIFERY.

THE Examinations Committee of the Society of Apothecaries of London has drawn up a report which is to be presented shortly to the Court of Assistants of the Society and which predicates a departure of great educational interest in the work of the Society. For this report recommends the Society to institute at an early date a diploma indicating specialised knowledge of the subjects of antenatal care, midwifery, and infant welfare. The diploma it is proposed to grant to registered medical practitioners who have been engaged in post-graduate study of the particular subjects, both in practice and theory, and a high standard of professional knowledge will be guaranteed by a stringent examinational test. It is intended to leave no doubt whatever as to the intensive character of the work done by the candidates for the new diploma, or as to the character of the examination being one of honours standard. The movement of the Society is one that will meet with general approval, for such a diploma will be specially adapted to the needs of the practitioner. Apart from the fact that a doctor may wish to show that he possesses a knowledge and experience in these subjects of a higher grade than that demanded for legal qualification, the acquisition by a large number of doctors of the diploma must lead to a higher standard generally of gynæcological training. How much this is needed has been the subject of debate in the proceedings of the General Medical Council and before medical societies on many occasions, when the lack of opportunities afforded to medical students for the sound study of obstetrics and gynæcology has been a matter of general regret, and has been seen to present educational and institutional problems that cry for solution. The invitation of the Society of Apothecaries to the post-graduate study of these subjects is therefore timely.

PHOSPHATIC CALCULI AND DIET.

PHOSPHATIC calculi, forming stones in the bladder of rats, seem to have been first associated with a dietetic cause by T. B. Osborne and L. B. Mendel [1] in 1917. They noticed the occasional occurrence of stones among their experimental animals, more particularly in their earlier work, and when they made a survey of the diets given to the rats in which these stones were found at necropsy, they were able to make the following generalisation: "In every instance where calculi developed the animals were without an adequate source of the fat-soluble vitamin for some time." They also noted that in their earlier work they had often used diets which were deficient in fat-soluble vitamin, whereas later this deficiency had not been permitted. Two recent papers on the subject agree in confirming Osborne and Mendel's observations. From the Imperial State Institute for Nutrition at Tokyo, directed by Dr. Tadasu Saiki, comes a paper by Yoshitomo Fujimaki,[2] in which deficiencies in the vitamins A, B, and C or in combinations of them, in the minerals calcium and phosphorus, and in protein, are examined as possible causal factors in stone in the bladder of rats. As a result of his investigations Fujimaki found that a deficiency in vitamin A regularly produced calculi not only in the bladder but also in the kidney and gall-bladder. The first did not develop consistently until the rats had been on the diet for 12 weeks or more; renal stones took a longer time and gall-stones longer still. The

[1] Jour. Amer. Med. Assoc., 1917, lxix., 32.
[2] Progress of the Science of Nutrition in Japan. By Tadasu Saiki. League of Nations Health Organisation. 1926. (Obtainable from Messrs. Constable and Co., London.)

rats were kept alive for these long periods by being occasionally given a normal diet for a short time; the principal difference lay in an addition of cod-liver oil. Fujimaki points out that the change from the deficient diet to the one containing cod-liver oil was accompanied by a change in the reaction of the urine from alkaline to acid. He was actually able to demonstrate that stones, detected by X ray, disappeared after the rat had received a course of cod-liver oil. Lieut.-Colonel R. McCarrison [3] has obtained very similar results. The diet he used was different and probably deficient in more factors than was Fujimaki's. He found that stone in the bladder had not developed in rats killed after eight weeks, but only in those which had been given the diet for a longer time. In this diet, relative poverty in vitamin A was only one of the defects which he recognised, lack of good protein, and an excess of phosphates being others. From these three pieces of work it seems fairly safe to conclude that a long-continued deficiency or partial deficiency in fat-soluble vitamins is an important ætiological factor in stone in the bladder of rats. It is rather surprising, however, to find that vitamin A is spoken of throughout as if it were the only fat-soluble vitamin; in all the experiments vitamin D was just as deficient, but this deficiency is never mentioned in discussing the ætiology. In 1917, when Osborne and Mendel wrote their paper, these two vitamins were not differentiated, but no reason is apparent in the work of Fujimaki or McCarrison (carried out in 1926) why a deficiency or an addition of vitamins A and D should be spoken of as an addition or a deficiency of vitamin A only, nor why the whole effect observed is ascribed to this vitamin. Possibly it is the only factor concerned; its absence is believed to lower immunity, and if the deposition of phosphatic calculi is regarded as of infective origin the modus operandi of the vitamin becomes intelligible. But there is certainly no definite proof of the supposition in any of the work described here.

GROUP MEDICINE IN PRACTICE.

IN this country coördinated work in medical practice is still in the experimental stage, and thus far, clinics have almost always been modelled on American lines. That is to say, that one person—in each case a physician—has acted as head of a number of regional specialists of whose work he is the ultimate arbiter. The objection to this method lies in the fact that the fate of the patient is at the discretion of an individual who retains the power of rejection of any evidence submitted by technical subordinates, should such evidence clash with his own preconceptions. Success in practice is mainly due to two factors, a theoretical knowledge of disease and the ability to make a diagnosis by a process of deduction from the heterogeneous symptoms displayed by a given patient. In proportion to the allegiance which the physician owes to the one or the other factor will he belong to the category of those who by excess of erudition never enunciate a finite opinion, or of those who, trusting too much to imagination, become the prey of obsessions. In other words, success is the reward of caution in avoiding pitfalls, or of occasional brilliance in diagnosis or treatment sufficient to overshadow failures. Group medicine alone offers the patient an escape from the Scylla of excessive caution and the Charybdis of dogmatism. In genuine group practice each opinion contributing to a diagnosis is primus inter pares, adduced at a round-table conference to which the patient's own doctor is invited. Each opinion is weighed in conjunction with all the others and a majority diagnosis based on established facts results. It is obvious that if opinions are to carry weight at a round-table conference they must emanate from men of recognised authority, and hence the number of groups working on these idealistic lines has economic limits. Further, to maintain the independence of such opinions group work should be an addition to the private and hospital practice of the members composing the group. If confined to diagnosis only, group work can hardly be a paying proposition because the public could not afford fees commensurate with the time and labour involved. Beds and treatment fees are essential to make the venture economically sound. There is, however, an objection to group work which is not commonly emphasised, and yet lies at the root of many of its difficulties. Successful group work demands group temperament. In the current number of the *Boston Medical and Surgical Journal* Dr. P. E. Truesdale surveys the subject of group medicine and sums up in its favour. He recognises this factor of temperament when he says, "group practice is essentially a young man's enterprise," and again "the original personnel of a group should be friends possessing a bond of sympathy and stable companionship; their interests, aims, and ideals should be identical . . . . They should be willing to subordinate individuality and make sacrifices for their common purpose; they should be charitable towards their co-workers, whose faults are inevitably exposed more often than when practising alone." In short, the group temperament may be best defined by that essentially British expression "sporting," and it seems that the most successful group will be composed of those whose past education has included some form of team games. Whatever may be said in detraction of athletics, it does cultivate two essentials to group practice, a sense of humour and level judgment. The administrator of a group should not merely be a man of all-round medical attainment but should have had some experience of leadership—Dr. Truesdale would have him a past athletic leader with, if possible, the training of a barrister. A barrister with a medical education might, indeed, be the ideal pilot if only for the reason that a barrister's training involves the marshalling of facts to the exclusion of fancies, but in visualizing the ideal chairman of a clinical committee we must not insist on so much equipment that no candidates will appear fit for the post.

[3] Indian Jour. of Med. Res., 1927, xiv., 895.

DIATHERMY IN THE TREATMENT OF DEAFNESS.

BELIEVING that about 90 per cent. of deafness is caused by obstruction of the Eustachian tube, Dr. Maurice Coelst,[1] of Brussels, has devised a method of treating these strictures by the topical application of a high-frequency current in the form of diathermo-coagulation, which is the form of diathermy ordinarily used for surgical purposes. As a preliminary, the pharyngeal orifice is examined with the salpingoscope and the length and diameter of the stenosis is ascertained by the passage of bougies. A Eustachian catheter of insulating material is necessary—the author employs one made of ebonite—and a bougie of spring-steel about 0·3 mm. in diameter tipped with a small button of solder. The nose and Eustachian orifice are anæsthetised by applications of stovaine-adrenalin solution, and the indifferent electrode is applied to the lower part of the corresponding ear. The steel bougie is passed through the stricture and a current of 350 milliampères is turned on; after 3 seconds the bougie is slowly withdrawn through the stenosed portion of the tube during a further 6 or 7 seconds, after which the current is turned off. The ensuing reaction makes the patient deafer for a fortnight, after which he should have a further catheterisation. Dr. Coelst says that the characteristics of the cicatricial tissue resulting from diathermy are suppleness, absence of retraction, and lack of any tendency to produce granulations or adhesions. He has treated 15 cases by this method in all of which there had been no benefit from other forms of treatment. Two of the patients were lost sight of; but in all the remaining 13 the patency of the Eustachian tube was re-established, this being confirmed after six months in seven of them, and

[1] Bruxelles-Médical, July 3rd.

after a shorter time in the remaining six. In 11 cases there was a very marked improvement of hearing, and Dr. Coelst claims that none was made worse; vertigo disappeared in one case and tinnitus ceased in three cases. Although all aurists will not agree that Eustachian obstruction is the cause of 90 per cent. of deafness, it is at any rate a fruitful source of this affection. If this method can be shown, on a larger number of patients and with a greater lapse of time, to cure Eustachian strictures and to be reasonably free from danger, a considerable advance will have been made in the treatment of a very common and distressing disability.

PEPTONE INJECTIONS IN THE TREATMENT OF MIGRAINE.

THE possibility of migraine being due to protein supersensitiveness has frequently been suggested, and cases often occur in families in which asthma, urticaria, and other diseases of this class are common, although migraine itself is such a widespread disease that statistical conclusions tend to be fallacious. In the current number of the *American Journal of the Medical Sciences*, Dr. F. E. Ball, of Chicago, gives an account of the results of treatment in 20 cases. These cases were selected in so far as all of them had proved resistant to the commoner forms of treatment, such as regulation of diet and administration of iodine. The technique followed was to give an initial dose of ℥v. of 5 per cent. solution of peptone intravenously, followed after three or four doses by further injections in which the dose was increased by ℥v. each time until a maximum of ℥xxv. was reached. If no benefit followed a series of eight to ten injections the treatment was discontinued and regarded as a failure. When, however, the result was favourable, the time-interval between injections was gradually lengthened until the longest interval was found that secured freedom from headache, the injections being continued accordingly. The result in this series was that 50 per cent. of the cases were failures, seven cases (35 per cent.) were markedly improved, and three (15 per cent.) somewhat improved. When it is remembered that care was taken in the first place to select resistant cases these results must be considered as satisfactory. Dr. Ball was unable to discover any clinical or ætiological signs indicating which patients might be expected to receive benefit; but in all the patients who got marked relief visual disturbances which normally preceded the headaches continued at the time, though the full attack failed to mature. In the same paper the writer considers what association, if any, there may be between migraine, asthma, hay fever, urticaria, epilepsy, and eczema, but upon careful analysis of 1000 unselected family histories he is unable to find figures bearing out the common conception of a close relationship between these diseases, with the exception always of an association between hay fever and asthma.

MEDICAL PRACTITIONERS AND FELDSHERS IN LITHUANIA.

THERE are at present in Lithuania 476 properly registered doctors of medicine, 276 dentists, 353 feldshers, 270 midwives, 152 sisters of mercy, and 8 masseur specialists. There are also, we learn from the Northern News Service, 48 hospitals, with 756 beds, and three sanatoriums—viz., at Varena, Birstonas, and Kulatovoja. With a population estimated at about 2,000,000, it will be seen that there is, approximately, one registered doctor to every 4000 persons, one dentist to every 7000, one feldsher to every 6000, and one hospital bed to every 2300. By way of comparison it may be mentioned that in the British Isles, taking the population as well under 50,000,000, there are about 50,000 registered medical practitioners (including, of course, a proportion not in practice) and 15,000 dentists now on the Dental Register. The proportion of hospital beds to the population is locally so capricious as to make an average figure misleading. In this country we have nothing corresponding to the "feldsher." Lithuania has, no doubt, inherited this form of semi-qualified practitioner from the Russian Empire of which it was formerly a part. The origin of the feldsher system is of interest. In Peter the Great's Medical School in Moscow the most severe punishment for an erring student was expulsion from the school to serve in the ranks of the army. A less drastic punishment—reserved especially for students who repeatedly failed in their examinations—was to send them to serve, not in the ranks, but as barbers and blood-letters to the regiments. A little later a second category of military feldsher was created; a number of the sons of soldiers were trained in the arts of blood-letting and of nursing generally, and these helped to relieve the students by whom at that time the nursing in the military hospitals was mostly done. It was only after the emancipation of the serfs in 1861 and the creation of the system of *zemstvo* government that a class of civilian feldshers came into existence. Before the war they played an important part in the Russian medical system. There were large areas where no qualified doctor was to be found, and where the people were wholly dependent on the services of the feldsher. The system was no doubt a far from ideal one, but it was perhaps the best attainable under the conditions that prevailed. The feldsher's training was far from negligible, and his services were undoubtedly preferable to those of the "wise man" or "wise woman" of the village, to whom alone the peasant could otherwise have recourse. The whole question of "feldsherism" was described and discussed at great length by Dr. F. G. Clemow in THE LANCET [1] at the time of the International Medical Congress held in Moscow in 1897. Whether the system still prevails in Russia we are not in a position to state. In Lithuania, it would seem, there are approximately three feldshers to every four registered practitioners.

THE ÆTIOLOGY OF ERYTHEMA NODOSUM.

THOUGH the evidence of the last few years seems mainly to be in favour of regarding erythema nodosum as an expression of tuberculosis, nevertheless arguments are still being advanced in support of the hypothesis that it is produced by the organism or organisms responsible for rheumatism in childhood. Of the three rheumatic affections—acute polyarthritis, chorea minor, and acute endocarditis—the first is apparently the one most often correlated with erythema nodosum, and in many accounts of this condition attention has been drawn to the coincidence of pain or swelling in the joints of the affected limbs. An examination of the relationship was therefore undertaken by Dr. Albin Landau,[2] at Dr. Wallgren's Children's Hospital in Gothenburg, and at this hospital in the period Jan. 1st, 1922, to Sept. 1st, 1926, records were kept of all the cases of erythema nodosum on the one hand, and of acute rheumatic polyarthritis, acute endocarditis, and chorea minor on the other. On the record-sheets a special place was allotted to erythema nodosum, so that if there was a history of this complaint it would not be overlooked. It was found that among the 130 cases of erythema nodosum treated in this period there was only one in which the relatives could give a history of rheumatism. Among the 136 cases of rheumatism belonging to one or other of the three rheumatic categories mentioned above, there were four in which a history of erythema nodosum could be obtained. In all five cases in which the patients had suffered from both complaints the Pirquet reaction was positive, and in as many as three of these cases there were signs of pulmonary disease of a tuberculous character. Considering how common both erythema and rheumatic affections are in childhood, the fact that there was a history of

[1] Medicine Past and Present in Russia, supplement to the LANCET, August 7th, 1897.
[2] Acta Pædiatrica, 1927, vi., Fasc. 3–4.

erythema nodosum in about 3 per cent. of all the rheumatic cases can hardly be considered evidence of an ætiological relationship. In support of this negative conclusion may be added the interesting observation that the age-incidence of the two diseases was not identical; erythema nodosum began to appear after the age of 2 years and was commonest between the ages of 3 and 10, whereas the rheumatic complaints did not become frequent till after the sixth year. Nor was the seasonal prevalence altogether the same, for the rheumatic complaints were seen most often in the winter (especially January) and spring, whilst erythema nodosum was commonest in the spring (especially May). No definite conclusion, of course, can be based on this small series of cases, but the problem is interesting, and further attention might well be given to it.

AN ENDOWED RESEARCH INSTITUTE.

THE new pathological laboratory and research institute at the City of London Hospital for Diseases of Heart and Lungs, Victoria Park, the gift of the Prudential Assurance Company, was opened on July 19th by Mr. Neville Chamberlain, Minister of Health. Sir Alexander Kaye Butterworth, Chairman of the hospital, in acknowledging the generous gift of the Prudential, announced that the necessary additional cost of equipping and fitting out the laboratories had been partially met by an anonymous donation of £500 and by a contribution of £400 from the Ladies' Association. He was further desirous of building up an endowment fund for research, and a start had been made by a gift of £250. Mr. A. C. Thompson, the Chairman of the Prudential, in welcoming the Minister, mentioned that his company had decided to provide the remainder of the money necessary for equipment, a further sum of £400. Mr. Chamberlain said that no Government department was engaged in such an unceasing warfare as was the Ministry of Health. In this battle against disease he realised the extraordinary extent to which the public was served by voluntary efforts and by the sacrifice of individual citizens and groups of citizens. Pulmonary tuberculosis, heart disease, and diseases of the respiratory system were three of the first five diseases in order of deadliness. In the last ten years the mortality-rate of pulmonary tuberculosis had been reduced by nearly 28 per cent., that of respiratory disease by 34 per cent., and of heart disease by 3 per cent. From a national point of view, over 2½ million pounds was spent annually out of the rates and taxes upon the treatment of civilian cases of tuberculosis alone, and in considering the national loss a great deal had to be added to that figure for the waste of productive power and disablement. There were two directions in which he hoped it might be possible still further to reduce this drain upon the national resources—viz. (1) the improvement of the means of diagnosis, particularly perhaps in cancer and tuberculosis; (2) the provision of post-graduate education which would enable the general practitioner to keep up to date. He welcomed the recognition by one of the great companies connected with the National Insurance schemes of the necessity for looking ahead and making provision for work which would ultimately be for the benefit of the country as a whole. After the opening ceremony a garden party took place at which Lady Maud Carnegie was hostess, and the new laboratories were opened to visitors.

EPIDEMIC CATARRHAL JAUNDICE.

IT has long been recognised that the mild type of jaundice occurring especially in children and young adults tends to become epidemic from time to time. Its low mortality and the relative safety with which the disease can be treated in the general wards of hospitals have perhaps led to under-emphasis of its true infective nature; but most practitioners, and particularly those engaged in charge of schools and institutions where young people live in close contact, have from time to time observed outbreaks involving a number of cases. The Ministry of Health has just issued a report [1] on the subject by Dr. M. T. Morgan, of the Ministry, and Dr. H. C. Brown, of the Wellcome Bureau of Scientific Research. Their work deals with an outbreak of jaundice which occurred in a number of villages simultaneously in the Midland and Eastern Counties of England during the winter of 1925; more than 200 persons were affected, most of whom were young children, and except in two cases the course of the disease was mild and without serious consequences or sequelæ. Only one patient died, and it is perhaps worth remarking that in this case the clinical phenomena were somewhat atypical in that the illness was very severe from the beginning and was unaccompanied by pyrexia; the post-mortem appearances were those of acute hepatic atrophy, and there was a notable absence of pathological changes in any organs besides the liver. The importance of the other case which is recorded as serious is perhaps over-emphasised in the report as the child was well within a month of the onset of the disease. In general it may be said that the clinical features of this epidemic were those familiar to all medical men under the name of catarrhal jaundice. Owing to the obviously infectious nature of the malady special pains were taken to exclude the possibility that *Leptospira icterohæmorrhagiæ* was the cause of the disease, but inoculations of blood and urine into animals were uniformly unsuccessful in producing lesions characteristic of spirochætosis icterohæmorrhagica, and these experiments were so carefully controlled by different observers that it may be accepted as proved that the infection was not of this nature. In 1924 G. L. Gulland and George Buchanan [2] reported a small epidemic of spirochætal jaundice in East Lothian, but that appears to be almost the sole instance of an epidemic of the kind in Great Britain. In the August number of the *Edinburgh Medical Journal* T. J. Mackie and D. G. S. McLachlan record an outbreak of jaundice of exceedingly mild type occurring in five children attending an Ayrshire school, two adult members of one of the families also being affected. Spirochætes similar to atypical leptospiras were found in the urine of three of the four cases examined, but animal tests were negative, a result ascribed by the authors to devitalisation of the infecting organism by the acid and bile-containing urine. No information was obtained regarding the initial source of infection in this outbreak. Investigation into the causation of the milder form of epidemic jaundice is continuing, and it is to be hoped that the present report of the Ministry is preliminary. What is clear, even now, is that the conception of this disease as being due to a temporary blockage of the common bile-duct by a plug of inflammatory exudate is supported neither by clinical nor by laboratory evidence. Perhaps the most useful lesson which has been learned from the study of the van den Bergh and other tests of hepatic function is that cases of so-called catarrhal jaundice are invariably associated with the true hepatitis. The Ministry's report furnishes additional evidence in this direction.

EPSOM COLLEGE.

THE seventy-fourth anniversary of Founder's Day was celebrated at Epsom College last Saturday, when H.R.H. Prince Arthur of Connaught gave away the prizes, addressed the boys, and afterwards opened the new pavilion. To the casual observer, school speech-days bear a remarkable similarity year after year. There were, however, several reasons why those responsible for the welfare of Epsom could regard this particular anniversary as a mile-stone on the road of progress. In the first place, the presence of Prince Arthur showed a continuation of the interest that the Royal Family has always

[1] Reports on Public Health and Medical Subjects, No. 42. H.M. Stationery Office. 9*d*.
[2] Brit. Med. Jour., 1924, i., 313.

displayed in the school. Secondly, this present year has seen the completion of the penultimate stage in the council's plans for the advancement of the school, whereby it takes its place among those with a muster roll of 400. Yet another event of importance, especially to the boys themselves, was the opening of the new pavilion, while the presence of a large number of old boys among the thousand guests was a pleasant indication of their interest and support. Prince Arthur divided his address, which was essentially for the boys, into two parts: the fine part in life to be played for the welfare of the community by those of them who were destined to become doctors, and the great opportunity offered by emigration to those who had not yet chosen their career. From his own personal experience of South Africa, he could assure them that successful careers could be made in the Dominions and Colonies by public school boys of the right stamp possessed of grit and a capital of £1000 to £1500, who were prepared to take up agriculture. When Dr. Raymond Crawfurd became chairman of the council some five years ago certain plans were formulated, which aimed at the increase in numbers of the boys of public school age from 250 to 400. To achieve this has necessitated an expenditure of over £40,000 in bricks and mortar, but the result is that there are now 387 boys, who have a beautiful chapel, up-to-date chemistry and science classrooms, with many other amenities of public school life that were previously lacking. As regards the pavilion, it is worthy of note that less than a year ago old boys and parents were first asked to subscribe. Within six months, in spite of the general strike and the ensuing coal strike, £2700 had been raised, and within another six months the pavilion had been built. It provides accommodation of modern type in the way of washing, changing, and dining-rooms, seating accommodation for all the college needs for years to come, a "tuck shop," and premises for the ground staff's accommodation. Messrs. C. E. Barry and Son, the architects, presented the design as a donation to the Pavilion Fund, Mr. Barry, junior, being himself an old boy. The headmaster (Mr. A. C. Powell), in his annual report, spoke of a very satisfactory position in school life. Chief among the successes was the senior open science scholarship at Jesus College, Cambridge, won by E. A. Marsh, who achieved the unusual by passing the B.Sc. examination of London University while still at school. As a result of bequests, two new entrance scholarships, one of £120 per annum and one of 100 guineas per annum, will be made available for open competition.

A MEETING OF NEUROLOGISTS.

THE American Neurological Association several months ago accepted an invitation from the Neurological Section of the Royal Society of Medicine to hold its annual conference this year in London, and to have a series of joint meetings with English neurologists. Thirty-four of the visitors, many of them accompanied by their wives and daughters, arrived in this country on Friday of last week, whilst others were already in this country. The proceedings began on Monday evening with the reception of the visitors at the Royal Society of Medicine. Sir James Berry (President of the Society) and Lady Berry received the guests in the library, and there was a large attendance both of visitors and Fellows. Among the former were Dr. Charles Dana (President of the American Neurological Association), Dr. F. Tilney, Dr. H. A. Riley, Dr. B. Sachs, Mr. Penfield, Dr. Cornwall, Dr. N. W. Winkelman, and Dr. I. H. Weisenburg (Secretary of the Association). After the reception Sir James Purves-Stewart, this year's President of the Neurological Section of the Royal Society of Medicine, gave a lecture entitled "Mount Athos," in which he described his visit in 1916 to that remarkable community, and showed many lantern slides of its monasteries. He explained the organisation of the monastic republic, and the exclusion from it of every female, human or animal—"no cows, no milk, no hens, no eggs." The architecture of the monasteries, many of which date from the tenth century, was illustrated, and some account was given of life within the walls. The lecturer was impressed by the mental stagnation within the community, and the lack of appreciation of the priceless manuscripts which are in their possession. Dr. Charles Dana afterwards proposed a vote of thanks to Sir James Purves-Stewart for his entertaining lecture; this was seconded by Dr. Bernard Sachs, and conveyed to the lecturer by Sir James Berry. The joint meetings of the Association and the Section were continued during the week, and a report of the early proceedings appears on p. 258.

WE regret to announce the death on July 26th in London, in his 83rd year, of Sir Bryan Donkin, consulting physician to the Westminster Hospital. A leading criminologist, his outspoken expressions have been of the greatest public value in many social circumstances. A fuller obituary notice will appear in our pages.

MEMBERS of the medical profession will also learn with sorrow the death, in his 66th year, of Mr. Alfred C. Taylor, of Peterborough, whose radiological work commenced with Rontgen's discovery and was carried on assiduously for over 30 years in spite of the serious consequences to his health manifested in dermatitis and the loss of fingers from both hands.

THE conferment of a knighthood upon Dr. Wilfred Thomason Grenfell, C.M.G., will give pleasure to his many friends inside and outside the medical profession. Dr. Grenfell is a Fellow of the Royal College of Surgeons of England, who holds honorary degrees of the Universities of Oxford, Harvard, and Williams. As doctor, missionary, and mariner his name will always be associated with life and progress in Labrador.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXIV.

THE TREATMENT OF ERYTHEMA MULTIFORME AND ALLIED ERUPTIONS.

THIS large and relatively common group of toxic erythematous eruptions will for our purposes include erythema multiforme (e.g., iris or target forms), erythema nodosum or contusiforme, and purpura.

A simultaneous consideration of these clinical types is justified by what has been termed their rheumatoid characters. The lesions are always evanescent or fleeting, tending to recur, sometimes with seasonal variations, and not infrequently accompanied by fever, constitutional disturbances, and vague rheumatic pains around the joints and in fibrous planes. Scarring is never produced in uncomplicated cases. A certain similarity in the pathological histology further justifies this grouping. Exudation of serum or blood through a damaged capillary endothelium is the keynote. In all three conditions there is some evidence to support the view that a hæmolytic streptococcus may play a part in the causation. It has actually been recovered and grown in pure culture from some of the lesions, especially those of a purpuric type. In a large percentage of the cases there is a history of tonsillar trouble, and it is likely that the organisms or their toxins may enter the circulation at this point. In others, again, there is pronounced dental sepsis, which may be obvious or revealed only by X rays. The possibility of these two sources of blood infection should always receive due consideration, but it has to be admitted that eradication of such foci does not invariably lead to a cure or prevent relapses.

If we are satisfied that the surgical work has been thorough, and that the macroscopic and accessible foci have been completely eradicated, we are then faced with the more difficult and problematical search for subsidiary foci, a task which may baffle even the most experienced. In this connexion it is well to remember that the causative toxin may be medicinal or metabolic, as well as bacterial, and that cases are recorded which appear to have followed the ingestion of tinned foods; this brings the clinical picture into line with those (like urticaria) for which an anaphylactic explanation is put forward. In urticaria there is considerable experimental and clinical evidence that histamine, or a chemical substance resembling it, is the actual causative agent. By analogy there is much to be said for the theory that the introduction of certain drugs—e.g., iodine or quinine—in predisposed persons, the existence of septic and occluded foci, or the ingestion of stale foods, may lead to the formation or splitting off from tissue molecules of a definite type of albuminoid poison which specifically produces the eruptions we call erythema multiforme, erythema nodosum, or purpura. Such a hypothesis is attractive, and whether ultimately proven or not, at any rate provides a basis for treatment.

There are special therapeutic indications in each of the three members of the group.

Erythema Multiforme.

In the acute case the treatment should at first be symptomatic only, for it is never wise to attack even obvious foci surgically when the whole circulation is presumably flooded with the causative virus. This caution would seem especially advisable in cases with oral or pharyngeal lesions. These patients are best treated in bed, with the usual attention to diet, purgation, &c. If gastro-intestinal symptoms occur, calomel, salol, or high rectal washouts with saline or weak permanganate of potash (1 in 5000 or weaker) may be administered. If there is much oral sepsis or eruption of bullæ, with rapid formation of eroded or ulcerated areas in the mouth, only the bland and soothing antiseptics will be tolerated. These include weak solutions of glycothymolin (℥ i. to O i.), peroxide (5 vols. per cent.), and bicarbonate of soda (gr. x. ad ℥i). Pains in the joints should be treated with salicylate of soda, but do not respond so well as the true rheumatic cases. While the patient is under immediate medical supervision every effort should be made to discover the source of infection. Swabs may be taken from the tonsils or gums; a bacterial investigation of sterile samples of the urine may prove useful for the purposes of diagnosis, or for the preparation of a vaccine at a later stage.

Local treatment of the cutaneous manifestations is a simple matter, for the patient, as a rule, does not complain of much more than burning or slight itching. Lead and calamine lotion in equal parts usually suffices to give relief. Strong antiseptics should never be used, and lotions and powders are better than ointments.

Vaccine treatment is best deferred until the surgical procedures are completed. In one case, in which a virulent hæmolytic streptococcus had been recovered from the urine, the fæces, and the apical abscesses at the roots of many teeth, every injection of the autogenous vaccine was followed on the next day by a fresh eruption of vesicular erythema multiforme over the whole trunk. The phenomenon showed how sensitive some patients are to the virus, and suggests the need for caution in the matter of dosage and dose intervals. There is good reason to suppose that in the case quoted the vaccine helped to promote the recovery of the patient.

Erythema Nodosum.

In this disease the inflammatory process and the exudation of serum are at a deeper plane, and occur in tissues, such as the shins, in which pressure effects give rise to pain. Pain is indeed usually the symptom that most urgently requires treatment. Bed is essential, and salicylate of soda or aspirin gives considerable relief. The affected members may be wrapped in cotton-wool over a 10 per cent. ichthyol ointment, or lead compresses may be applied. While most authorities are convinced of the presence of circulating toxins in such cases, there is some doubt as to their nature. The safest position is to regard erythema nodosum as a symptom which may occur as a manifestation of various poisons, and that in its ætiology rheumatism, tuberculosis, streptococcal infections, certain acute specific fevers, and gastro-intestinal toxæmia may play a part. During the attack the same general measures are applicable as for erythema multiforme; when the attack is over there should be instituted a similar process of investigation, which must include an examination of the patient's personal and family history, especially as regards tuberculosis.

Purpuric Eruptions.

Purpuric eruptions may be classified broadly into primary or idiopathic, and secondary. The ætiology of the former group is entirely unknown, and its incidence increasingly rare. There is ground for the belief that in the future a bacterial or biochemical cause will be found for all cases. A blood count and a Wassermann test should precede all other investigations, for purpuric eruptions may occur in many blood diseases of both known and unknown causation. They may also occur in diabetes and advanced renal disease, and are of grave significance when associated with intermittent fever and signs of organic disease of the heart. Beyond attention to the points already laid down above, little can be suggested on general lines. The treatment must in the main be symptomatic and governed by the severity of the case. When hæmorrhage from mucous membranes, from the kidney, or from the stomach is a feature, the outlook is serious, and it has been computed that 14 per cent. of such cases proceed to a fatal termination. Three varieties of idiopathic purpura are described.

(1) *P. simplex*, usually seen in young children as small petechial spots on the legs chiefly. There may also be joint pains and slight fever. Rest in bed and a light diet is usually all that is required, and recovery is the rule in from two to three weeks.

(2) *P. rheumatica.*—In this type the joint symptoms predominate, but occasionally there is an associated eruption of bluish red macules.

(3) *P. hæmorrhagica.*—As its name implies, the hæmorrhages, which may be either cutaneous, subcutaneous, or general from any mucous surface, are the main feature of the clinical picture. Joint symptoms may also occur, and treatment by salicylates may afford some relief.

The number of recommendations available for the treatment of severe cases of purpura is in inverse ratio to the degree of their reliability. Adrenalin chloride by the mouth or by subcutaneous injection of 5 to 10 minims of a 1 in 1000 solution three to four times daily is probably the most valuable symptomatic agent we possess. In desperate cases blood transfusions from a relative in the corresponding blood group may be tried, while in those less dangerously situated the blood may be given intramuscularly in 20 c.cm. doses in the buttocks. Horse serum (20 c.cm.) at intervals of three or four days has other advocates, but if used must be given with due care to the avoidance of the most troublesome and ever-present possibility of subsequent serum disease.

Calcium salts are generally prescribed for all cases of purpura, and in the severe types with serious hæmorrhages intramuscular injections of whole blood are said to have been beneficial. In cases of a chronic relapsing type, X ray irradiation of the spleen, which is sometimes felt to be enlarged, may do good, and recovery has been reported after splenectomy.

In the secondary group of purpura every effort must be made to trace out and eradicate a septic focus, for, just as in erythema multiforme and erythema nodosum, the best results can only be expected by discovery and abolition of the cause.

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Special Articles.

ACUTE RHEUMATISM IN CHILDHOOD.

REPORT BY THE MINISTRY OF HEALTH.

THE bacteriology, incidence, and institutional treatment of acute rheumatic infection are the subjects chiefly considered in the latest Report [1] of the Ministry of Health. Unlike that issued in 1924,[2] this Report deals with rheumatism in children, the disease being studied in its relation to cardiac disability. In his preface Sir George Newman points out that in England and Wales during 1926 diseases of the heart caused 142 out of every 1000 deaths—cancer causing 117 and tuberculosis 82—and attributes some 40 per cent. of the cardiac mortality to rheumatism. It is only, he says, by the early, continuous, and thorough treatment of this infection that we can hope to save lives or prevent crippling, and there is perhaps no more striking example of the principle that treatment must begin as soon as possible after a disease becomes manifest.

Bacteriology.

The first section of the Report is a historical survey, after which Dr. Arthur Eastwood summarises our knowledge of the bacteriology of acute rheumatism. Observers who have reported positive results have generally, he says, been in favour of some form of micrococcus, and most workers now agree that the cocci found in association with the disease do not from a species of their own but must be included within the group of streptococci. Some streptococci produce hæmolysis in a blood medium and are termed *S. hæmolyticus*. Others do not hæmolyse blood but form green colonies and are therefore known as *S. viridans*. The cocci found in acute rheumatism, though occasionally hæmolytic, are generally *S. viridans;* but organisms of this type are widely distributed, and are often found as harmless saprophytes or as the causal agent in lesions which have nothing to do with rheumatic fever. Attempts to distinguish the rheumatic organism from the others by serological reactions have not been conspicuously successful, and the strains associated with acute rheumatism do not appear amenable to grouping either into a single class or into a reasonably small number of types. It is possible that future work will bring some sort of order into the apparent chaos.

Another method of approach is experimental inoculation of animals, and from work of this kind Dr. Eastwood draws the important conclusion that the lesions produced in the rabbit by *S. viridans* isolated from cases of rheumatic fever are not clearly distinguishable from lesions produced in the rabbit by streptococci from other sources. While refusing to adjudicate between the positive and negative findings of the many workers who have tried to isolate organisms from the blood or organs of rheumatic patients, he points out that negative results may be due either to absence of *S. viridans* as an infecting agent or to its low viability when it gains access to the blood in small numbers. Further work on blood cultures is of primary importance. There are two main objections to the theory that streptococci are merely secondary invaders in acute rheumatism and that the true causal agent is a filter-passer. These are: (1) that there has been no satisfactory demonstration of an ultra-microscopic virus, and (2) that diseases thought to be due to viruses of this kind are generally highly infectious.

In conclusion, Dr. Eastwood remarks that many experienced observers think that acute rheumatism is caused by *S. viridans*, and although they have not proved their case completely they have good reason for asserting that no rival theory has made substantial headway. From the bacteriological standpoint interest appears to be mainly focused on further analysis of this group of organisms by biochemical and immunological methods, though the theory of an ultra-microscopic virus cannot be absolutely excluded.

Predisposing Causes.

Part II. of the Report considers the incidence and prevention of diseases of the heart. The cardiac mortality, it is claimed, is increasing despite an apparent charge in the nature of the rheumatic infection. Acute rheumatism is less acute and virulent than it was 40 or 50 years ago, but its minor manifestations appear more frequently than before. Urbanisation and industrialisation appear to be potent predisposing factors in the causation of cardiac disease, and receive full consideration in a recent report [3] of the Medical Research Council, which deals with heredity, environment, infectivity, housing, dampness of house and site, overcrowding, sore-throat, and other subjects. The Council's investigators found that the incidence of acute rheumatic infection amongst those in close contact with a patient was unduly high, suggesting that infection was transmissible by infected persons. It was observed that among the very poor and destitute rheumatism is less common than among the children of the hospital class, but Sir George Newman throws doubt on this observation, and an investigation described in the Ministry's Report suggests that the poorer the home the greater the risk. The disease is, of course, rare among the well-to-do, and in reference to its absence at Eton College for many years it is pointed out that besides great advantages in nurture a large proportion of boys entering the College (nearly 70 per cent. in a recent sample) have had their tonsils removed.

Nature of the Disease.

No satisfactory definition can yet be given.

"Probably (says the Report), it is correct to say that acute rheumatism is a general systemic infection, comparable in many ways to the infection of tubercle or of syphilis, 'A chronic slowly progressive disease characterised by intervals of calm simulating complete recovery and periods of activity which entail further damage to the organism' (T. T. Mackie) that this infection usually enters the system through infected tonsils, that up to the age of puberty the brunt of the infection usually falls upon and abides in the heart, and that just before and at puberty, especially in the female child, there is a special liability of the central nervous system to infection. After puberty the brunt of infection tends gradually to fall rather less upon the heart and rather more upon the synovial membrane of the joints, although the heart is still affected in more than half even of adult patients. . . The prodromal signs of the rheumatic infection in children are often pallor, loss of weight, slight daily rise of temperature, accompanied by an increased pulse-rate, and fatigue out of all proportion to the task or play. To distinguish what is called the pre-rheumatic child from the equally indefinite pre-tubercular child is difficult. Both require the most careful medical supervision, and the so-called pre-rheumatic child is too often in reality already the rheumatic child."

The early recognition of rheumatic infection is as difficult as it is important. The chief minor manifestations, which are often the first to appear, are growing pains, recurrent tonsillitis, and subcutaneous nodules, whilst other premonitory manifestations include epistaxis, erythema multiforme, persistent headache unexplained by eyestrain, and nervous symptoms which may be signs of so-called latent chorea—e.g., nightmare, talking or doing sums during sleep, habit spasms, acquired enuresis, "exaggerated" fidgetiness, clumsiness, and deterioration of handwriting.

[1] Reports on Public Health and Medical Subjects, No. 44. 1927. H.M. Stationery Office. 1s. 6d.
[2] The same series, No. 23.

[3] Medical Research Council: Special Report No. 114. 1927. H.M. Stationery Office. 2s. 6d. (See THE LANCET, 1927, i., 552 and 562.)

Growing Pains may be mild and evanescent. They are usually described as most noticeable in the hamstrings behind the knee, but H. P. Newsholme found in 50 per cent. of his cases that pain was referred to the front of the thigh. Stiff neck in a child should be regarded with suspicion. Growing pains constitute the distance danger-signal of rheumatism, and may afford weeks or even months of warning. "When they are present in a child with signs suggestive of tonsillar disease it is indeed time to seek medical advice, and probably to enucleate the tonsils."

Recurrent Tonsillitis.—At routine examinations of elementary school-children at least 5 per cent. are found to have enlarged tonsils, whereas among children who have once shown the major signs of rheumatism the proportion is at least ten times as great. Recurrent tonsillitis is a danger-signal of acute rheumatism, and in about 10 per cent. of cases a sharp attack of tonsillitis is a prodromal symptom.

The major manifestations are, of course, arthritis, chorea, and carditis. The first occurs in 60 to 70 per cent. of all children with rheumatic infection sufficiently ill for admission to hospital. It is estimated that of the 5,000,000 children at ordinary elementary schools in England and Wales 0·7 per cent. have organic cardiac defects (0·5 per cent. requiring supervision and 0·2 per cent. requiring treatment).

Tonsillectomy.

Mackie [4] found that only 57 per cent. of first recurrences developed within four years of the first attack of rheumatic fever. The apparent success of tonsillectomy or other therapeutic or preventive measures must be reconsidered in the light of this conclusion.

The report sums up as follows: "The truth probably is that tonsillectomy (if practised early enough and if completely performed) is of great value not only as a prophylactic against a first attack of acute rheumatism, but also that it is often an effective preventive of recurrence, and that it also has a highly beneficial effect in preventing rheumatic carditis from resulting in permanent damage."

The fact that tonsillectomy often does not prevent a first attack of rheumatism is attributed, partly at least, to the infection having reached the cervical glands or some other focus before operation. "Even if this be so, however, the removal of infected tonsils is almost certain to prove beneficial, and examples of any harm following the operation are exceedingly rare."

In his preface Sir George Newman remarks that in its indications of the value of tonsillectomy the report may perhaps go further than the evidence warrants.

Care of Rheumatic Children.

Over 2000 children receive in-patient treatment in London every year, of whom more than half are treated at Poor-law infirmaries. The second report [5] of the British Medical Association's sub-committee stated :—

"The voluntary hospitals in general, and the children's hospitals in particular, make every effort to provide in-patient treatment for patients with active rheumatic symptoms, and their needs are fairly well met. Where enough accommodation is wanting it is usually a matter of either particularly heavy incidence or a general shortage of hospital beds for the district."

Mrs. Forest Smith, in a careful survey of the treatment given to the 508 rheumatic children below 12 years of age brought to St. Thomas's Hospital during a year, finds that 77·2 per cent. were treated as out-patients at home. Of these 508 children, 21·9 per cent. already had cardiac damage, and a further 21·3 per cent. had threatened cardiac involvement. She shows clearly the disadvantages of home treatment in the hospital classes, and in view of her data Sir George Newman regards the B.M.A. subcommittee's statement as too favourable. "For every child who is fortunate enough to be admitted as an in-patient there are," he says, "two, three, or even four children who need in-patient treatment, and who do not get it." These children cannot get the necessary rest and control in a crowded, busy, restless home.

The report concludes with a survey of treatment from the public health standpoint. The following principles are laid down :—

"Complete" rest should be continued for at least three weeks after (1) the pulse-rate and temperature have returned to normal, (2) anæmia has disappeared, and (3) the heart signs are unchanged. Under favourable conditions "graduated" rest may then be substituted. Country air, perfect environment, and constant medical and nursing supervision are required, together with special educational arrangements. Removal of focal sepsis is regarded as essential.

Detailed consideration is given to the care of rheumatic children at (*a*) special homes, (*b*) ordinary convalescent homes, (*c*) day open-air schools, (*d*) residential open-air schools, and (*e*) physically defective schools, and important suggestions are made as to the coördination of measures for prevention and treatment.

With the exception of the preface, and sections by Dr. Eastwood, Mrs. M. Forest Smith, and Dr. J. E. A. Underwood, the report is the work of Dr. J. Alison Glover, of the Ministry of Health.

The authors are to be congratulated on their presentation of facts and opinions.

MEDICINE AND THE LAW.

No Prescriptive Right to Pollute Rivers.

A CORRESPONDENT has drawn attention to a phrase in the article (THE LANCET, April 16th, p. 830) on the Pollution of Rivers, in which the words were used "plea of a prescriptive right to pollute." As he rightly points out, the defence of prescriptive right is greatly restricted, if not entirely abolished, by the decision of Mr. Justice Eve in 1922 in Hulley *v.* Silversprings Bleaching and Dyeing Co. The pollution of a river is a statutory offence under Section 4 of the Act of 1876, and no one can acquire a prescriptive right to do what a statute forbids. The effect of this case has already been explained in these columns (1926, ii., 715). As has often been remarked, the decision has hardly been given its proper effect. In these times, which are so critical for industry, magistrates and judges are, perhaps naturally, anxious not to hamper local commercial activities or to throw men out of employment. There is an atmosphere of toleration because public opinion has not been focused upon the evils of pollution. Prosecutions and actions for injunction thus lose some of their terror for those who are responsible for pollution. Thus, in turn, others are discouraged who else might institute proceedings. Meanwhile, if a recent speech of the Earl of Balfour in the House of Lords is to be taken as the official view, it would seem that the hopes of cleaner rivers are remote.

It will be worth while to elaborate the ruling given in Hulley's case (1922, 2 Ch. 268). Mr. Hulley owned Pool Bank Mill on a stream called Timbersbrook in Cheshire. He spent £5000 on altering the mill and fitting up machinery for his trade as a cotton doubler, and then found he could not begin business because the defendant company was interrupting his riparian right to a full flow of clean water. The company, after pleading the customary denials so as to put him to the proof of the facts, contended that, if there was any pollution, there was a long-established usage justifying it, either from time immemorial, or under

[4] Amer. Jour. of Med. Sci., August, 1926, p. 220.
[5] Brit. Med. Jour. (Supplement), April 16th, 1927.

a presumed lost grant or under a 20-year period of prescription. The law has always been kind to long-established usage. If the courts find that there has been such usage over a long period they are lenient in exacting proof of it. The law allows evidence of 20 years' usage to be prima facie conclusive, and the courts are endowed (as a judge has said) with great powers of imagination for the purpose of supporting ancient use—for example, they favour the fiction of a lost grant. But in Hulley's case Mr. Justice Eve was clear that the discharge of pollution into the Timbersbrook was an offence under the 1876 Act, that this offence had been continued right down to the trial of the action, and that a lost grant cannot be presumed if the grant would have been in contravention of a statute. "As title by prescription is founded upon the presumption of a grant, if no grant could lawfully have been made no presumption of the kind could arise." The claim to pollute was held to have failed, and the company had to pay the costs. This was not new law. The learned judge cited a case in which he had been engaged when still at the Bar (Neaverson *v.* Peterborough Rural Council, 1902, 1 Ch. 557) on a different subject, but laying down the same principle. There was a question of pasturage on roadsides in the fen district. An Act of Parliament limited the pasturing to sheep, doubtless to avoid the breaking-down of drainage banks by the trampling of horses and heavy cattle. For 50 years the highway surveyor had let the roadside herbage for the pasturing of horses and cattle as well as sheep. Cozens-Hardy J. was satisfied with this long-established usage as setting up a presumption of a lost grant. The Court of Appeal overruled him. Unless such an imaginary grant had a legal origin the court could not imagine its existence. The grant would have been contrary to the Act of Parliament and thus it was unimaginable. What was wanted to support the ancient usage was not a lost grant, but a lost Act of Parliament, and Acts of Parliament do not lose themselves. There are similar observations by Lord Macnaghten in a House of Lords case (Butterworth *v.* West Riding of Yorkshire Rivers Board, 1909, A.C. at p. 54). But indeed there is no doubt about the law. What is at fault is the half-hearted application of the existing powers of individuals and local authorities to prevent pollution. Prosecutions will have no deterrent effect till courts become aware that public opinion is aroused and insists upon the enforcement of the law.

DONATIONS AND BEQUESTS.—Mr. Thomas Alfred Harrop, of Timperley, Cheshire, and of Whitworth-street, Manchester, left £500 each to St. Mary's Hospital, Whitworth-street West, Manchester, the Manchester Royal Children's Hospital, Pendlebury, the Manchester Babies' Hospital, Levenshulme, and £250 to the Ancoats Hospital.—Mr. Abraham Ormerod, of Walsden, Todmorden, Yorks, after some annuities and legacies, left all his other property—about £30,000—for such charitable purposes or institutions or objects in England as his trustees in their uncontrolled discretion may select, but he expressed the wish (but without creating any trust in the matter) that they will have regard to such institutions and objects as will tend to alleviate pain and suffering, and in their opinion be of direct benefit to the people of Todmorden.—Mrs. Joseph Cunningham and her two sons and daughter have united in a gift to Noble's Isle of Man Hospital of an electro-medical pavilion with all modern equipment, estimated to cost between £5000 and £6000.—The record gift of £11,857 in subscriptions was announced at the festival dinner of the Royal Hospital and Home for Incurables, Putney, which was held on June 30th.—The late Mr. Solomon Kaufman, of Hartlepool Durham, left, among other bequests, £500 each to the Hartlepools Hospital and Dispensary and the Jews' Hospital and Orphan Asylum, West Norwood, S.E.—A cheque for £5000, to be used in extending accommodation, has been given to the Adamson Cottage Hospital, Cupar, by Mr. J. B. Crichton, of Luthrie Bank, North Fife.—The trustees of the late Mr. William Shepherd have made a second payment of £1000 to the General Lying-in Hospital, Lambeth, for the purpose of naming another bed to be called "The William Shepherd Bed."—Mr. Bernard Baron, of Hove, has given £5000 for the benefit of the crippled children of Chailey Heritage Schools, Sussex.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Opposition to Medical Appointments.

THE transfer of the selection of candidates for local offices from the local authorities to the local appointments commissioners has not worked without some friction. The machinery of making an appointment is as follows: When a vacancy occurs in the employment of a local authority, the latter, unless it chooses to fill the vacancy by transfer of an officer already in the public service, notifies the Minister of the existence of the vacancy. The Minister invites the local appointments commissioners to nominate a suitable candidate, and the local authority is bound to appoint the candidate so nominated. In their selection of a candidate in the case of medical vacancies the appointments commissioners always proceed on the advice of a selection board. This procedure was followed some weeks ago in the case of a dispensary vacancy in County Roscommon, and the name of a woman doctor was submitted to the county board of health for appointment. Protest was made by the board that the district was unsuitable for a woman doctor, and the Minister was asked to have another name submitted. He has remained obdurate, and he finally threatened to take the necessary legal proceedings to enforce the appointment of the lady nominated. In response to this the entire county board of health has resigned. It is of interest to recall that the legislation on which the present method of appointment is based was introduced in order to get away from the bribery and corruption which in some areas at least surrounded appointments made by the local authorities. This corruption was proved in regard to a member of the Roscommon board of health, who was sent to gaol for some months for soliciting a bribe in connexion with an election.

It is not, however, only in Roscommon that friction has arisen out of the new method of appointment. The Carlow County Council has refused to appoint the gentleman nominated by the appointments commissioners for the post of county medical officer of health, while an appointment in County Monaghan was only made after several months of controversy.

The Dentists Bill.

The Dentists Bill, reintroduced to the Dail three weeks ago, has been postponed and will not receive further consideration this session. This is perhaps just as well, as some points of importance are raised in the Bill, apparently without due consideration. It is understood that the Bill is the result of deliberations between representatives of the Government and of the dental profession, in which representatives of the medical profession had no part. The Bill proposes to prohibit the practice of dentistry or dental surgery by all who are not registered dentists. This prohibition makes an exception of medical practitioners on the register at the date of the passing of the Act, but only makes a partial exception of future medical practitioners, who may give dental treatment, advice, or attendance in "urgent dental cases." This interference with the rights and privileges possessed by the medical profession has roused opposition, and representations thereon have been made to the Government by the Council of the Royal College of Surgeons in Ireland. It is pointed out also that a curtailment of the practice of medicine and surgery, such as the Bill proposes, may give rise to some uneasiness as to the agreement recently arrived at between the British and Irish Governments on the subject of the Medical Register. It is hoped that the time given for further consideration may help to dissolve the difficulties raised by the Bill. One cannot but think that these difficulties would have been avoided altogether had the Government had the advantage of an earlier consultation with representatives of the medical profession.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Ponudos or Pseudo-leprosy.

WHILE on a visit from Guatemala, where he is stationed, Dr. Roblès has described to the Academy of Medicine a disease frequent enough in Guatemala, but which has never yet been classified. The lesions are chronic, resembling elephantiasis of the feet, the onset being insidious with successive remission and advance. The first sign is an erythematous patch accompanied by transient enlargement of the inguinal glands and high fever, followed by chronic œdema with thickening and pitting of the toe-nails and dorsal surface of the feet. The lesions only affect the soft parts, the skiagram showing the bones to remain unaffected. Dr. Roblès proposes the name of pseudo-leprosy for this affection, inasmuch as it has been frequently confused with true leprosy, although readily distinguished by the absence of lepra bacilli and of any alteration of sensation. On the other hand, it is distinguished from other kinds of elephantiasis by the absence from the blood and tissues of any recognisable parasites.

The Medico-legal Aspect of General Paralysis.

The favourable results of treatment by arsenical and bismuth salts, by shock therapy, and especially by malarial infection, in cases suspected of meningo-encephalitis or even at an early stage of general paresis, have materially altered the outlook for the patient. Figures show that the proportion of cases in which long remission is obtained varies from 30 to 40 per cent. Prof. Henri Claude, who has dealt with 143 cases at the clinic for mental diseases, gives a percentage of 40·5 of complete remission as compared with 10 to 12 per cent. of partial remission occurring spontaneously. This alteration in outlook has necessitated the revision of the legal measures taken for the protection of these patients. It is, of course, necessary to take account of the importance of their responsibilities and of the nature of their work, and in any case it is desirable in the patient's own interest for him to avoid overwork and remain an indefinite time under medical supervision. Prof. Claude counsels reserve even in the cases of most favourable aspect, when the question of civil capacity and the possibility of relapse has to be decided. Yet he admits that in a number of patients who were allowed to return to their occupation, progress has been continuous and satisfactory. It is therefore possible that medico-legal decisions in general paralysis may in the future not be couched in the stringent form of the past. The appointment of a provisional administrator may avoid the necessity of making any final decision and allow of watching the evolution of the disease when submitted to energetic treatment. On the other hand, in view of the unbalanced mentality of these patients, it would obviously not be judicious to allow them too rapidly to recover control of their affairs. Cases of complete restoration are still the exception, but in view of the increasing number of recoveries, Prof. Claude is right in insisting on caution in taking medico-legal decisions as to civil capacity.

Leprosy in Paris.

The Paris Municipal Council is considering measures for the control of leprosy, its action being urged because there is a tendency on the part of lepers from various countries to seek the treatment afforded by the Hôpital St. Louis and other Paris hospitals. The new measures contemplate isolation of the cases in a special ward at the Hôpital St. Louis, obligatory declaration, domiciliary control by therapeutic and bacteriological methods, exclusion of lepers from occupations such as hair-dressing, laundries, and the cooking and sale of foods, and the creation of leprosariums and the elaboration of arrangements with foreign countries with a view to restriction of the immigration of lepers into France.

VIENNA.

(FROM OUR OWN CORRESPONDENT).

Deaths in the Profession.

BY the death a few days ago of Prof. Rudolf Kaufmann, the cardiologist, Vienna loses an investigator of great ability. Whilst still a young man he commanded the attention of Nothnagel and Maunaberg by his work on the pathology of the intestinal canal, and when, at the beginning of this century, modern methods of research on the heart were made known, he threw himself with zeal and ardour into the new study; a long series of papers on the size of the heart, the cardiac muscle and its rhythm, stenocardia, pulmonary œdema, parasystole, allorhythmia, and the circulation in the coronary vessels show to what wide understanding he attained. Together with Prof. H. Mayer he experimented on the pharmacological side of his subject, and during the late war he organised a huge "heart hospital," in which the effects of shock, over-exertion, infectious disease, and neurasthenia on the normal and diseased heart were studied. Many soldiers regained their cardiac health in this hospital, and after the war Kaufmann succeeded in perpetuating its service for the benefit of the general public. His death at the age of 56 came quite unexpectedly.

The second severe loss to the medical faculty is caused by the death of Prof. Luithlen, the dermatologist, in his fifty-eighth year. He, too, had been closely associated with the work of Prof. Mayer and had investigated the pharmacology of the skin, publishing numerous papers, also, on pemphigus, scleroderma, and elephantiasis. At one time he was assistant to the famous Kaposi.

Lactation.

At the last meeting of the Gynæcological Society of Vienna Prof. Kraul read a paper in which he dealt with the physiology of lactation. This condition, he said, brings about a regular alteration of the blood picture; there is leucocytosis, eosinophilia, and lymphocytosis. The vasomotor centres react in a different way in the lactating woman to adrenalin and caffeine, and the lactating mother is less prone to glycosuria than the non-lactating. There is also increased tone in the vagus. In 75 per cent. of all lactating women the typical amenorrhœa of lactation is found. This is caused not by an absence of ovarian function, but by cystic degeneration and over-rapid maturation of the follicles; at the same time there is hypofunction of the hypophysis. The vegetative nervous system acts (so to say) as an intermediary between metabolism and ovary on the one hand and the rest of the gland of internal secretion on the other. Most investigators are not of this opinion, believing that the mammary glands produce their secretion because they are not stopped by the ovary. In abnormally protracted lactation loss of ovarian function is certainly found; but as there are wet-nurses who are regular in their monthly periods although they are producing large quantities of milk, Prof. Kraul does not accept the theory that the ovary controls the breast. It is noticeable that the appearance and condition of women often greatly improves after childbirth, which suggests that lactation has a considerable influence upon the general health and disposition.

BUCHAREST.

(FROM OUR OWN CORRESPONDENT.)

Seaside Sanatorium for Surgical Tuberculosis.

THE Ministry of Public Welfare has long been considering the establishment of a seaside sanatorium for the cure of surgical tuberculosis in children. The Government, however, has been unable to set aside the necessary funds, although convinced that such a

nstitution is needed, and the Society of Rumanian Charitable Women therefore proposes to raise the money required. With the same object a number of addresses have been given at the Bucharest Medical Society and elsewhere, at which it was pointed out that successful sanatoriums have been set up along the sea-coast in many countries and that—contrary to experience with adults—salt air and sea-bathing seem to be the best possible treatment for scrofulous conditions in children. Their usefulness in surgical tuberculosis is less certain, but, as an English surgeon said not long ago, it is scarcely justifiable to treat this condition in the hospitals of large cities. In orthopædic hospitals the necessity for fresh air and sunshine is well understood, and the children sent to country homes during the summer come back wonderfully improved.

Fees of Medical Practitioners.

The general increase in the cost of food and clothing and the rise in rent and especially in taxes has involved the raising of medical fees in Rumania, despite the appreciation of currency in the last few months. As, however, there is a Ministerial decree which establishes a minimal scale of fees in the different towns and in general throughout the country, most people pay only this minimum. When actions are brought for recovery of fees the civil court always orders the defendant to pay the fees laid down by regulation. The fees of general practitioners, however, are not determined on this basis, and most towns and local associations have announced a rise of 30 per cent. in their scale of payment, this change being seldom opposed. In towns of less than 30,000 inhabitants, taking families of moderate income with four to five members, the annual fee of the medical adviser is 1000 lei (about £5); in Bucharest the fee is from 5000 to 12,000 lei. These are paid in half-yearly instalments; extra payment sometimes has to be made for night calls and consultations, for visits to sanatoriums and hospitals, and for obstetric and surgical operations. In view of the fact that the average fee for attendance at the patient's home amounts to 100 to 150 lei (about 3*s.*) in the larger towns and 100 lei even in the smaller towns, it may be said that the present financial position of the medical profession in Rumania is satisfactory.

Diphtheria in Serbia.

In a recent report of the Chief Sanitary Board of Yugoslavia it is stated that during the decennium 1915–25 8736 cases of diphtheria were notified in the old kingdom of Serbia, with a mortality of 2117, or about 25 per cent. Of the cases notified antitoxin was given in 5234, and in these the mortality was about 21 per cent.; in the cases not treated with antitoxin, on the other hand, the mortality was no less than 46 per cent. Apart from curative treatment 14,276 persons were given prophylactic injections of antitoxin. They were all members of households invaded by diphtheria, and 54 of them were afterwards attacked by the disease, 19 of the cases proving fatal. In the whole series of people treated curatively and prophylactically, abnormal after-effects were noted in only 24 patients. These effects comprised serum rashes (8), erythema (4), roseola (2), local inflammation at the site of the injection (3) and abscess (4), painful elbow-joint (1), pain in the leg and swelling of the foot (1), and suppuration in the middle ear (1).

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENT.)

Psychiatry and the Law.

THE American Psychiatric Association held its annual meeting last month at Cincinnati, in company with four other national societies interested in mental hygiene and abnormal psychology, and the combined meetings drew several hundred physicians from all parts of the country. The most important business transacted was the outlining of a new legal code. This lays down the need for a classification of mental disorders taking into consideration "behaviour pathology not now definitely defined or classified from a psychiatric standpoint." There are also to be laid down "official standard qualifications" of expert witnesses in psychiatry and for psychologists and social workers attached to psychiatric clinics. Various proposals by the American Institute for Criminal Law and Criminology were approved, including a recommendation that the disposition and punishment of all misdemeanants and felons be based upon a study of the individual offender by qualified and impartial experts coöperating with the courts. The indeterminate sentence was favoured, and it was agreed that no parole or discharge should be granted without full psychiatric examination. The last proposal, if adopted, will almost of necessity require the appointment of resident psychiatrists in the larger penal institutions. It was recommended that courses in criminology be given both in law schools and in medical schools by persons trained in criminal law as well as in criminal psychiatry.

Infant Mortality.

The U.S. Children's Bureau has just completed an analysis of infant deaths in eight American cities, the study covering a series of 23,000 live births. Advocates of birth control will note with interest that mortality is highest when births come in quick succession and lowest among babies born at intervals of four years or more. The possibility of spurious correlation here must not be forgotten. It may be also that the somewhat higher mortality in children of mothers under 20 years of age is due to their less fortunate circumstances rather than to their youth. Babies of mothers who died within a year of confinement had a four times heavier mortality than those whose mothers survived the first year. Mortality was lowest for infants born in August and highest for those born in June. The death-rate of premature babies was more than six times as high as that of babies born at term. The mortality drops month by month for the first year of life; it was 44·8 per 1000 in the first month, 9·3 in the second, and 4·5 in the twelfth.

Prevention of Blindness.

A successful year is reported by the National Committee for the Prevention of Blindness. Preschool eye clinics have been established, and at the end of the year three demonstration centres were at work in which children from 3 to 6 years of age were being examined. The sight-saving classes in the United States have increased from two in 1913 to 265 in 1926. The subjects considered by the classes include a survey of the schools for myopic persons in Great Britain. The committee has given attention to methods of illumination in industry and the popularisation of modern devices with employees and managers. It is satisfactory to note that the admissions to schools for the blind due to ophthalmia neonatorum are only half of what they were 20 years ago.

THE MERCHANT TAYLORS AND "BART.'S."—The Merchant Taylors' Company have agreed to contribute £7000 to the reconstruction fund of St. Bartholomew's Hospital, paying £1000 per annum for the next seven years. There is a long connexion between the hospital and the company.

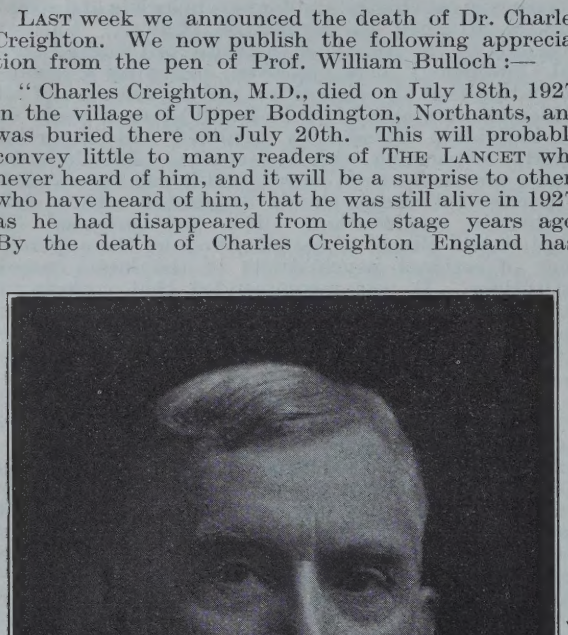
WEST HERTS HOSPITAL.—The new Marnham maternity ward at this hospital has been opened by the Marchioness of Salisbury. The erection of the ward was the chief part of the scheme of improvements and additions for which the £15,000 centenary appeal was made. Dr. Hogarth, for the Ministry of Health, which has contributed some financial assistance, said that an effort was being made to reduce maternal mortality, and that in addition to the new ward there were beds for cases of puerperal fever. The Ministry was encouraging the provision of institutional treatment for this disease in rural areas.

Obituary.

THE LATE DR. CHARLES CREIGHTON.

LAST week we announced the death of Dr. Charles Creighton. We now publish the following appreciation from the pen of Prof. William Bulloch :—

"Charles Creighton, M.D., died on July 18th, 1927, in the village of Upper Boddington, Northants, and was buried there on July 20th. This will probably convey little to many readers of THE LANCET who never heard of him, and it will be a surprise to others who have heard of him, that he was still alive in 1927, as he had disappeared from the stage years ago. By the death of Charles Creighton England has, however, lost her most learned medical scholar of the nineteenth century, although it cannot be forgotten that some of his opinions were the subject of such criticism that he ceased to be felt as a power in the medical world.



CHARLES CREIGHTON.

[*Photograph by Elliott and Fry, Ltd.*

"Creighton was born in Peterhead on Nov. 21st, 1847, the son of Alexander Creighton, a sawmiller and timber merchant of that town. After education at the Gymnasium in old Aberdeen, and having taken a high place in the strenuous examination known locally as the 'bursary competition,' he passed through the arts curriculum of Aberdeen University and graduated M.A. in 1867. He studied medicine in Aberdeen and Edinburgh and graduated M.B.Aberd. in 1871 and M.D. in 1878. He then set out on his *Wanderjahre* and spent a long time in Berlin in Virchow's Institute and in Vienna, where he attached himself particularly to Skoda and Rokitanski. Returning to this country he became medical registrar at Charing Cross Hospital and surgical registrar at St. Thomas's Hospital, and then began to occupy himself with anatomical problems and cancer research under Burdon-Sanderson at the newly opened Brown Institution in the Wandsworth-road. In 1877 he was appointed demonstrator of anatomy at Cambridge under Sir George M. Humphry, and he remained there till 1881, when he returned to London. Here he stayed for 37 years working assiduously and alone in the British Museum and other libraries. It was in the British Museum during the 'eighties, that he amassed the enormous collection of material which he employed to such good purpose in his invaluable 'History of Epidemics in Great Britain.' For a short time he had attempted to practise, first in Savile-row and then in New Cavendish-street, but he made nothing of it. He was by nature totally unfitted for this branch of medical activity. During more than 30 years he resided in chambers in Great Ormond-street, known to only a few and literally despised and rejected. At the end of the war his slender funds enabled him to purchase a small tumble-down cottage in the old-world village of Upper Boddington, and here, all by himself, he spent the last eight years of his life, like the philosopher that he was, and without enmity towards a world that had treated him harshly.

"I first met Charles Creighton at a concert given by the John Murray Minstrels about 30 years ago, and until he left London was a close friend of his. I also visited him in his sylvan retreat in Northampton. I will go further and state my belief that I was his only intimate friend for years before he died, for he was a most lonely forsaken man. To the end he was a scholar and philosopher and the most learned man I ever knew. He spoke and read nearly all the European languages and had an extraordinary knowledge not only of medicine but of the classics and the Bible. His knowledge of English literature and history was also profound. Although he frequently spoke as if he wished to be considered and remembered as a pathologist, it is by his 'History of Epidemics in Great Britain' that he earned a permanent place beside the great masters of medical history like Daremberg, Haeser, Freind, and Hirsch. In my judgment Creighton's 'History of Epidemics' is the greatest work of medical learning published in the nineteenth century by an Englishman. It covers the period from 664 A.D. to about 1890, and is written with such philosophical insight and with such literary brilliance and knowledge as to re-create for us the disastrous epidemics of centuries ago. I many cannot always agree with all his opinions and interpretations his data have never been in question. They have been examined over and over again and have been found so accurate that a citation from 'Creighton' invariably passes as an authoritative canon. I have read, re-read, studied, and analysed Creighton's wonderful book, and have never discovered an error on a question of fact, when I have examined the original sources. He had thoroughly sifted a vast mass of historical material, and relatively little—and that unimportant—has been added to his labours by subsequent workers. The volumes as they appeared were hailed as landmarks, and, although admirably got up, never sold well. In the course of a few years large numbers of 'remainders' were unloaded on the market and were sold on bookstalls in the London streets at the cost of a few shillings. It is now scarce. Creighton's monetary reward for his labour was negligible.

"In addition to his 'History' Charles Creighton conferred a lasting boon on English Medicine by his accurate translation for the New Sydenham Society of Hirsch's 'Handbuch der Historisch-geographischen Pathologie.' He accomplished the herculean task of translating this great work without any aid whatsoever. He once told me it cost him 12 hours a day for a period of three years! Had it not been for Creighton Hirsch's indispensable work would have remained *terra incognita* to the mass of English workers. In addition Creighton wrote a number of books on anatomical and pathological subjects. Among these may be named 'Contributions to the Physiology and Pathology of the Breast and its Lymphatic Glands,' 1878; 'Bovine Tuberculosis in Man,' 1881; 'Illu

rations of the Unconscious Memory of Disease,' 1886 1885]; Contributions to the Physiology and Pathology f the Breast., 1886; 'The Natural History of Cow-pox nd Vaccinal Syphilis,' 1887; 'Jenner and Vaccina- ion, a Strange Chapter in Medical History,' 1889; Microscopic Researches on the Formative Property f Glycogen' (two parts), 1896–99; 'Cancers and)ther Tumours of the Breast,' 1902; 'Contributions o the Physiological Theory of Tuberculosis,' 1908; Some Conclusions on Cancer,' 1920; 'Shakespeare's Story of His Life,' 1905. 'Shakespearean Allegories,' 912. This last work was in progress when Creighton ied.

"What can be said of these books, many of which vere published through the generosity of an early riend of Creighton? Under the influence of current eaching they seemed obscure and his standpoint ifficult to fathom. At the back of his head there was ome idea—to most of us a nebulous one—that iseases like tuberculosis or cancer were due to some yscrasia in the workings of the body. To most of is few readers his books meant nothing, and they fell ead at their birth, to Creighton's manifest chagrin. am sure he longed for the day when the eyes of the nedical world would be opened to see things as he nvisaged them. I saw the inception, progress, and nd of some of these books and argued with him on is views, and sometimes showed him things, under he microscope, which he said didn't exist; but he ould not be convinced.

"He was an extraordinary man, and 'brither Scot' hough he was, I cannot say I completely understood im. He seemed to have some mental twist which revented him seeing things as other people saw them. 'hat he implicitly believed all that he wrote I have no oubt, and he was fearless of the consequences and onest to the point of injuring himself and his prospects. Ie exhibited a complete indifference to the most hostile riticism and bore no grudge. He was contented and heerful and an admirable companion. He seemed ossessed of some cacodæmon, which was entirely nimical to worldly success, for which Creighton, owever, cared not a jot. Throughout life he was poor, lonely bachelor, leading a most frugal and hysiological life and solely concerned in digging the laim which he had pegged out by himself and or himself. He simply could not acclimatise imself to modern theories of disease. He belonged nedically to another age; he lived in a world of niasms and effluvia rather than particulate contagion n the form of bacteria. He was of the dyscrasic chool of Rokitansky in pathology. But he was in o sense of the word antiquated in his learning. His nowledge was of the most modern kind and of the idest compass. Although he was familiar with all ne methods of section-cutting and staining he inned his faith on sections cut with a razor from ssue, embedded in a 'penny dip,' and stained with ink.

"The real tragedy of Creighton's life was connected ith his views on cow-pox and vaccination. For many ears he had been the intimate friend of Robertson mith, the theologian and Arabic scholar, who was litor of the ninth edition of the 'Encyclopædia ritannica.' Robertson Smith got Creighton to write r the Encyclopædia the articles on malaria, medicine, orgagni, pathology, pellagra, and vaccination. The st-named article, published in 1888, literally sealed reighton's fate. Based on an extended study of the riginal data, he came to the conclusion that Jenner's ork was incorrect, and that cow-pox was not as enner stated 'variolæ vaccinæ.' In Creighton's ew cow-pox had nothing to do with variola and was ot a protective against variola. He even went rther and maintained that what had been described vaccinal syphilis was not venereal pox at all, but rt and parcel of the cow-pox infection in the human eing. Before the publication of the Encyclopædia rticle he had given evidence in a book published in 87 that he held this view. He was at once hailed y the anti-vaccinators as a valuable recruit to their nks and by the medical profession as a renegade to e treated with disdain and obloquy. One critic said that 'Nothing in all the history of pathology can be more grotesque, more absurd than his contention that infantile syphilis is largely due to the vaccine virus.' In a reply Creighton wrote: 'I have felt constrained to my great regret to differ from what I know well to be the solid opinion of the profession on the matter of vaccination. Anyone who takes sides with a minority or a small minority has only himself to blame. It is, of course, easier, more pleasant, and more profitable to be in the full stream of professional accord. Recusancy has its own disadvantages.' The issue between Creighton and general professional opinion on vaccination was not thrashed out there and then as it ought to have been. It was deemed more expedient to drop Creighton into oblivion, and if he was ever referred to at all it was only as 'Creighton the Anti-vaccinator.' All his other work was forgotten in the debacle, and he was a doomed man. He came to the front for a short time a decade later with some views on plague, which he had been enabled to study in India through some fund placed at his disposal. He could not be brought to believe that *Bacillus pestis* played any important part in the disease, which he regarded as merely an abstract something inherent in the soil. In his journey to the Punjab it was a peculiar pleasure for him to have stood by the Hydaspes where Alexander defeated Porus. He had no doubt that he had discovered the long-disputed site of the battle.

"In his later years, when he considered that his medical mission was done, he devoted himself to literary studies on Shakespeare and published 'Shakespeare's Story of His Life' and allegories on *Othello* and *Lear*. He also had written a large work on *Macbeth*, which he showed me in manuscript. Contrary to what might have been anticipated, he scorned the Baconian theory. His books on Shakespeare were ignored by the world, and if looked at were regarded either as incoherent or erroneous. What their significance, if any, was in Shakespearean literature I do not know. They were quite beyond my capacity. Creighton himself considered they were important.

"From all I have written it is plain that Charles Creighton could not be judged by ordinary standards. He was like a lonely rock in the great flowing tide of human progress. He was a self-contained personality, a thinker, a reader, and throughout life a diligent student. He adhered to his views with the greatest Scottish tenacity. He simply could not alter, and although he suffered grievously I never, in the long years of my acquaintance with him, heard from him a single complaint. He demanded little out of life and got less. It is pleasing to think that the anxiety of his declining years was relieved by a civil pension which he received, without any influence, from Lord Oxford and Asquith, who recognised in Creighton all the elements of a great scholar.

"In person Creighton was a tall, handsome, well-preserved man—the photograph shows him at about 60 years of age. He was throughout life fond of music and was a great walker. It is a pleasure to me to try to perpetuate the memory of a learned philospher who although by nature the very antithesis of myself, was a good friend. In the opinion of many he was harshly treated by the world for holding views that did not conform to standard. Perhaps this very world has become more tolerant than it was in Creighton's time, because even in his own subject there are epidemiologists who express with impunity to-day views as heterodox as those for which Creighton was pilloried and ostracised 40 years ago." W. B.

THE LATE DR. T. R. WIGLESWORTH.—Dr. Thomas Ridler Wiglesworth, who died at his home at Minster, Sheppey, on July 4th, was 61 years of age, and came of a Gloucestershire family. Educated at Bristol, he qualified as M.R.C.S. Eng. in 1892, and soon afterwards went abroad as medical officer to a gold mine in Nicaragua. In 1906 he settled in Sheppey as partner to Dr. Julius Cæsar, who died some months ago. For the last 20 years of his life he was medical officer to the Sheppey Rural District, besides being Admiralty surgeon for the Isle of Sheppey. Dr. Wiglesworth leaves a son.

Public Health Services.

TUBERCULOSIS SANATORIUMS.

CLASSIFICATION AND TREATMENT.

A SANATORIUM report should serve two purposes. In the first place it should provide the governing body of an institution with an account of the work done during the period under review, pointing out deficiencies and indicating the directions in which improvements should be made. In the second place it should supply information likely to be of service to other workers in the same field. Every sanatorium should be a centre of research. For while the main principles of sanatorium treatment are common to all such institutions and the benefits to be expected from a period of rest, fresh air, nourishing food, and graduated exercise are well known, we have still very much to learn concerning the results of various surgical procedures, of vaccine therapy and of drug treatment, and we have everything yet to learn of the possibility of discovering a specific antidote to tuberculosis. The difficulties of assessing the value of any particular form of treatment in a condition so sensitive to the effects of suggestion as that induced by tuberculosis are notorious. If every sanatorium (and we might add, every tuberculosis dispensary) was regarded as a research centre, if careful records were kept of every method of treatment adopted, and the results of such treatment were clearly set down, the present interminable and fruitless arguments concerning the value of certain supposed specifics would be set at rest, while much less time and money would be wasted in therapeutic procedures demonstrably ineffective.

A quotation from Sir Berkeley Moynihan is set at the beginning of the attractive report of the *Dumfries and Galloway Sanatorium* for the period included between the opening of the institution in 1924 and the end of last year. Speaking of cancer, he states that "the certainty of diagnosis is often the certainty of death. If we wait till we know, we wait till we cannot cure." The quotation is provocative. In a case of suspected malignant disease a doubtful diagnosis can be confirmed or dispelled by an exploratory operation. But the physician anxious to determine the correctness of a tentative diagnosis of pulmonary tuberculosis has no corresponding method by which he can at once set his doubts at rest. If he waits till he knows, it is by no means unlikely that the certainty of diagnosis will prove to be the certainty of death. But if he acts before he knows he may inflict the stigma that attaches to "the consumptive" on an innocent person, and condemn a patient who is in no danger of developing tuberculosis to a long period of sanatorium treatment.

The question of classification in pulmonary tuberculosis, involving as it does the question of diagnosis, is one of first importance, when a report on the results of its treatment is to be considered. No certain conclusions can be drawn as to the benefit of sanatorium treatment in general or of any special form of treatment adopted from a consideration of the so-called "T.B. minus" group. The Dumfries report includes a classification of patients suffering from pulmonary tuberculosis based on that recommended by the Ministry of Health. It is noteworthy that out of a total of 249 patients no less than 48 per cent. were classed as "T.B. minus" on admission. Thus, in nearly half of the total number of patients bacteriological proof of tuberculous infection was lacking on admission. The proportion of "T.B. minus" cases among the discharged was apparently about the same. It is to be noted further that a third of these cases were children, in whom a positive diagnosis of pulmonary tuberculosis is seldom possible. It is obviously better that statistics of children should be dealt with separately from those relating to adults. An extract from the histories of some of the patients is, however, supplied, and it is thus possible to form some estimate of the grounds upon which diagnosis was based. An extension of this system is desirable. It would be of the utmost advantage if sanatorium reports were always to include an analysis of the "T.B. minus" group indicating those cases giving a history of hæmoptysis, pleurisy, and close contact with sources of infection, as well as those in which symptoms and physical signs suggested a diagnosis of tuberculosis. Further explanation is required of the medical superintendent's comment that the group under consideration was "not wholly composed of very early cases, for tubercle bacilli are not found in a certain proportion of definitely intermediate and advanced cases." It is questionable whether a diagnosis of pulmonary tuberculosis is ever justified in the case of a patient who exhibits definite signs of intermediate or advanced disease, but whose expectoration, excretions, or secretions, have never yielded tubercle bacilli, despite careful and repeated search by a competent bacteriologist.

A further illustration of the need for more careful classification of pulmonary tuberculosis is provided by the annual report of the *Winsley Sanatorium*, a report apparently designed to meet the requirements of a lay committee alone. The "admissions" are divided into three classes, but no data are given as to the grounds on which the classification is based, nor is any reference made to the bacteriological examination of sputum except the bare statement that tubercle bacilli were found at one time or another in 136 cases out of a total of over 300. The discharged patients are also divided into three arbitrary classes. Of Class I. 77 per cent. were reported as "fit for work" on discharge; over 47 per cent. of Class II., and even 17·5 per cent. of those allocated to Class III., were declared to be in the same fortunate position. As the average length of stay of patients discharged during the year is given as 112·6 days we are driven to the conclusion either that the methods of classification are peculiar to this institution or that its treatment yields astonishingly satisfactory results. Turning to the latter we learn that "bacillary emulsion vaccine has been used with beneficial results in a limited number of suitable cases," that "the usual routine treatment was employed—namely, rest, walking exercise, and the usual grades"—whilst "tuberculin was used in suitable cases and artificial pneumothorax therapy was employed in cases which were judged suitable for it."

Those who are in charge of institutions for the tuberculous are under an obligation to their patients to provide the best treatment that our present very limited knowledge permits. There is no reason to suppose that they fail in this respect, but as indicated above, they are also under obligation to their colleagues to supply evidence of the value of every method of treatment employed. Such evidence must rest upon observed facts and deductions drawn from them. It is to be regretted when vague speculations and loose statements are given in place of scientific evidence.

The reports of the tuberculosis *After-care Associations at Walthamstow and Leyton* should be read by those who are inclined to question the value of organisations of this kind. The former in particular serves a much wider purpose than that of presenting a balance-sheet and summary of work accomplished. An introduction gives a brief account of the anti-tuberculosis campaign since the year 1912, when the Insurance Act became operative, outlines the present scheme of treatment, and explains the need for voluntary work if the scheme is to be effective. The work of a care association may make all the difference between hope and despair to a family whose head is stricken with tuberculosis. Still more important, however, is its work as an educational influence, especially to-day when there is a danger that ears deafened by the shouted exaggerations of the propagandist may fail to catch the still small voice of reason.

NFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 16TH, 1927.

Notifications.—The following cases of infectious isease were notified during the week:—Small-pox, 56 (last week 185); scarlet fever, 1553; diphtheria, 47; enteric fever, 84; pneumonia, 659; puerperal ever, 39; puerperal pyrexia, 128; cerebro-spinal ever, 4; acute poliomyelitis, 10; encephalitis thargica, 27; continued fever, 1; dysentery, 10; phthalmia neonatorum, 115. There were no cases f cholera, plague, or typhus fever notified during ne week.

Deaths.—In the aggregate of great towns, including ondon, there was no death from small-pox, 2 (1) from nteric fever, 21 (0) from measles, 3 (1) from scarlet ever, 14 (5) from whooping-cough, 20 (7) from iphtheria, 46 (9) from diarrhœa and enteritis under wo years, and 21 (0) from influenza. The figures in arentheses are those for London itself.

The Services.

ROYAL ARMY MEDICAL CORPS.

Maj. A. L. Otway retires on retd. pay on account of ill-ealth and is granted the rank of Lt.-Col.

The undermentioned Lts. (on prob.) are confirmed in heir rank: R. V. Franklin, G. Anderton, E. H. Hall, . A. Walmsley, A. Sachs, R. A. M. Humphrey, R. T. P. weedy, and T. E. Moles.

TERRITORIAL ARMY.

Maj. W. D. Watson, from R.A.M.C. (T.A.), to be Col. and .D.M.S. 54th (E. Anglian) Div., T.A., vice Col. G. A. Troup.

Maj. A. A. Hingston, having attained the age limit, is etd. and retains his rank, with permission to wear the rescribed uniform.

Maj. D. M. C. Church resigns his commn.

Capt. I. M. Pirrie to be Maj.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Col. C. W. Eames, having attained the age limit, elinquishes his commn. and retains his rank.

Maj. F. Hauxwell, from the Active List, to be Maj.

ROYAL AIR FORCE.

Temp. Lt. H. J. Eagleson (General List, Army, Dental urgeon) is granted a temp. commn. as a Flying Officer n attachment to the R.A.F.

Squadron Leader J. R. Crolius is placed on the retired list n his own request.

AUXILIARY AIR FORCE.

No. 605 County of Warwick (Bombing) Sqd.: J. S. erome to be Flying Officer.

INDIAN MEDICAL SERVICE.

Lt. D. Kelly to be Capt.

The King has approved the relinquishment of his temp. mmn. by Temp. Lieut. Aziz Khan Mahomed Khan.

Maj.-Genl. S. F. St. D. Green to be officiating Director Medical Services in India, vice Maj.-Genl. W. H. Ogilvie, n leave. Maj. H. P. Rudolf to be Specialist in Gynæcology nd Midwifery, Lucknow District, Lucknow, vice Lt. W. cott, vacated. Capt. L. A. J. Graham to be Specialist Dermatology, Presidency and Assam District, vice aj. H. P. Hart, vacated. Capt. A. C. Chatterjee has been ppointed to act as Police Surgeon, Calcutta, vice Maj. O. De, on leave. Lt.-Col. Anthony to officiate as Surg.-enl., Bombay. Maj. S. Gordon, senior medical officer, ıob, Independent Brigade Area, has been appointed to mmand the Indian Military Hospital, Loralai, vice Capt. I. Cox, vacated. Lt.-Col. H. R. Nutt, civil surgeon, llahabad, has been appointed to Medical Charge of the ntral Jail, Allahabad, vice Lt.-Col. C. E. Palmer, on ave. Lt.-Col. W. Parr has been reposted as Civil Surgeon d Superintendent, Mental Hospital and Robertson edical School, Nagpur. Dr. Narbada Prasad Shrivastava, fficiating Civil Surgeon and Superintendent, Mental Hospital d Robertson Medical School, Nagpur, has been posted Officiating Civil Surgeon to Akola. Lt.-Col. W. S. Willmore s been appointed Inspector-General of Civil Hospitals, har and Orissa. Maj. M. A. Rahman, Principal, Agra edical School, to officiate as Civil Surgeon, Agra. Dr. ıtiaq Husain Rizvi, Lecturer on Medical Jurisprudence d Hygiene, Agra Medical School, has been appointed as edical Officer in Immediate Charge, King Edward's spital, Lucknow. Dr. B. M. Gupta, assistant public alyst, to officiate as Public Analyst to the Government, ited Provinces.

Correspondence.

"Audi alteram partem."

VENEREAL DISEASE AND PROFESSIONAL SECRECY.

To the Editor of THE LANCET.

SIR,—There is no doubt that we should all wish to be free from a most unpleasant duty, and it may also be true that our obligation to give evidence may deter some patients from taking treatment. That side of the case is well known and has been often stated. But there is another.

First, there is at the present time no greater danger to liberty than that executive departments should be their own law makers. It has been frequently allowed of late years, but it is directly contrary to the principle that every executive officer is like every other man bound by the common law. If the Inland Revenue were involved instead of the Ministry of Health you would be up in arms at once, and the Ministry of Health is one of the worst offenders in this respect and has been bitterly complained of by medical men. I am, therefore, heartily glad on this account that its regulation has been disallowed.

Secondly, the one maxim that runs through the whole of English law and English history is that every man shall at whatever cost have justice. You argue that he is to be deprived of the evidence by which alone he can obtain it partly because it detracts from the dignity of medicine, and partly because it may damage the public health, to provide it. I have no hesitation in declaring that justice is more important than either.

I am, Sir, yours faithfully,

July 27th, 1927. W. P. HERRINGHAM.

To the Editor of THE LANCET.

SIR,—Your leading article is an opportune reminder to the profession of the persistent and insidious lay encroachment on the immemorial principle of medical professional secrecy. The past week has seen an effort on the part of a civic corporation to make it compulsory for doctors practising within its area of operation to notify to a public authority the presence of venereal disease in their patients. The Corporation of the City of Liverpool inserted in a Bill, which came for its final consideration to the House of Commons last Tuesday, the following clause:—

157. (1) In the following cases venereal disease shall be deemed to be an infectious disease to which the Infectious Disease (Notification) Act, 1889, applies (that is to say): (*a*) Any infant under two years of age suffering from any such disease; (*b*) any person (not being a child) suffering from any such disease who after being informed by any medical practitioner attending on or called in to visit him or by the medical officer that further treatment is necessary in order to effect a cure of such disease refuses or neglects to undergo such further treatment: Provided that notwithstanding anything contained in the said Act it shall not be the right or duty of any person other than a medical practitioner to give notice to the medical officer of any case of venereal disease.

(2) In this section the expression "venereal disease" has the same meaning as in the Venereal Disease Act 1917.

This clause (No. 157) forms part of a document of 136 folio pages. It attracted no general attention, and it was only the timely intervention at the last moment of a small group of Members, of whom I was one, that saved the enforcement of this monstrous rule upon the medical profession of Liverpool. The legislation which thus narrowly escaped enactment is in flagrant conflict with the regulations laid down by the Local Government Board in 1916 for the conduct of medical departments established for the prevention and treatment of venereal diseases. These orders contained these significant suggestions:—

5. "The arrangements for out-patient treatment will form the most important part of the scheme of the Council,

and these arrangements will vary to some extent according to local circumstances. But in all cases it will be important to arrange *that the clinics are not specially designated as for venereal diseases and that nothing is done to distinguish the patients who attend for treatment of these diseases.*" (The italics are in the original.)

6. . . . " The medical officers will probably find it necessary to obtain the names and addresses of patients for the purpose of subsequent communication with them and in order to arrange for continuity of treatment, but this information should not be used for any other purpose whatever. By Article II. (2) of the Regulations, all information obtained in regard to any person treated under a scheme approved in pursuance of the Regulations must be regarded as confidential, and it is essential for the success of any measures designed to deal with venereal diseases that patients should be fully assured as to the secrecy of the arrangements."

The purpose of these regulations is obviously to encourage the early treatment of venereal disease by shielding the patient from any publicity that could possibly be avoided. The forms in use at St. Mary's Hospital (which I enclose) demonstrate the elaborate precautions there taken to conceal the identity of the patient.

Your report says that Mr. Justice McCardie, in the case you comment upon, ruled that " in a court of law the doctor had no privilege similar to that held by a solicitor or other legal adviser." I believe that public opinion is ripe for the extension of that privilege to medical advisers, however strongly the legal profession may oppose such extension, and that the medical profession would be forcing an open door in demanding that the privilege of professional secrecy shall be enjoyed by them upon the same terms as by the lawyers.

I am, Sir, yours faithfully,

E. GRAHAM LITTLE.

House of Commons, July 25th, 1927.

To the Editor of THE LANCET.

SIR,—Your admirable leading article deserves, and has I am sure earned, the gratitude of the great majority of those whose work lies in the treatment of the diseases mentioned. Not infrequently a married patient has asked me whether all information that is given will be treated in absolute confidence even in the event of legal proceedings being instituted in the future. I have always assured patients that I considered that all information given in professional confidence could not under any circumstances honourably be divulged except with the patient's sanction and that I should maintain this attitude even in a court of law.

I think that the very great majority of medical and lay opinion would certainly support this view when the question involved was anything short of crime. I am not at all certain that a majority would not include all crimes, with the exception of murder, as venereal infection is not infrequently associated with sexual crime. As you rightly observe, " if protest is to be treated as a mere formality . . . . the public will soon learn to distrust the alleged secrecy," and I think those doctors who have conscientious scruples in betraying a professional secret should be willing to go to prison for conscience sake, as honourable men have so frequently been called upon to do in the past, rather than be coerced into what they consider a dishonourable act.

The law is, after all, only the wish of the people, and if a large number of people desire the alteration of a law, and a small number of people are willing to sacrifice themselves in order to obtain such alteration, it certainly will not be long before legal effect is given to the wishes of the people. In my opinion, the prevention and cure of venereal disease demands that professional secrecy should be maintained at all costs.

I am, Sir, yours faithfully,

H. WANSEY BAYLY.

Harley-street, W., July 25th, 1927.

THE MORTALITY FROM HÆMATEMESIS.

To the Editor of THE LANCET.

SIR,—I have read with great interest the communica tion from Dr. Ernest Bulmer in THE LANCET last wee concerning the mortality from hæmatemesis observe at the General Hospital, Birmingham. Like a statistical inquiries, it is likely to give rise to erroneou deductions, and as such deductions may lead t changes in the treatment of such cases, it is well t call attention to one or two points arising from h paper.

In the first place, Dr. Bulmer has given figur which concern the mortality amongst all cases i whom hæmatemesis was so severe as to lead t admission to hospital. His figures, therefore, repr sent the mortality in a highly selected group patients. They represent the mortality among patients exhibiting obvious and massive bleeding, an my first point is that they must not for a moment b taken to represent the risk of death amongst a patients who bleed from a peptic ulcer. Still mo must we avoid imagining that they give any inde of the risk of death from hæmorrhage among patients suffering from either acute or chronic ulcer tion of the stomach and duodenum.

It is to be noted that Dr. Bulmer's figures ha been quoted for a period of more than 24 yea The total deaths from hæmatemesis in that peri were 67 in all, or in other words, fewer than thr persons per annum die from this cause in the Gene Hospital, Birmingham. A minute's reflection I think, sufficient to convince one that the mortali from hæmatemesis is unimportant when contrast with the risk of death from perforation or fr operative interference and its complications.

The figures collected by me from the post-mort records of the Middlesex Hospital, and those quot by Dr. A. F. Hurst from the records of Guy's Hospit appear to show a lower mortality-rate from hæm emesis than do those recorded in Dr. Bulmer's pap It is not suggested for a moment that this differe is in any way due to fundamental differences in t treatment adopted in various hospitals, but it m well be explained in part by existing ambular facilities, as Dr. Bulmer himself says, or, again, t may to some extent be due to the number of medi beds in our hospitals reserved for emergencies, s opposed to routine medical admissions.

Whatever be the explanation, I do not think t careful examination of Dr. Bulmer's figures properly lead to the conclusion that death fr hæmatemesis is a very important risk amon patients suffering from ulceration of the stomach duodenum. I need not add that in stating t I make no suggestion that such hæmorrhages are very serious complications of peptic ulcer, and o which make the institution of careful treatm necessary in all such cases.

I am, Sir, yours faithfully,

T. IZOD BENNETT

Harley-street, W., July 25th, 1927.

DIET AND DIETISTS.

To the Editor of THE LANCET.

SIR,—In an endeavour to deal with the assert made by some of the advocates of whole wheat b bread that " cancer, appendicitis, and many o diseases are the result of the use of white bre the letter which appears over six signatures in y last issue calls for the serious attention and sideration of your readers. In that letter g stress is laid upon the biological value of vitami and its presence in white bread because yeast, w is believed to be rich in that vitamin, may have made use of in leavening our loaf. I would obse however, that your correspondents overlook fact that yeast is used in bread making not bec of any elusive or mysterious vitamin which it

ld to the bread, but because it attacks the sugar id generates carbon-dioxide, producing thereby a ght and spongy loaf. It is, of course, common nowledge that in the aeration of the loaf of bread east may be dispensed with altogether, and as a atter of fact much of the bread found on the market -day, which is equally as light and spongy as that ade with yeast, has been made by incorporating ready formed carbon-dioxide with the dough.

I would point out, moreover, that your correspondnts who have subscribed to the aforesaid letter ke no thought of what happens to their vitamin B white bread when so-called chemical improvers specially a chemical improver like persulphate of otash) are incorporated with the dough containing east. The persulphates are believed to act as idising agents, but, because of the gluten in bread, persulphate of potash is the improver used persulate of ammonia may be formed, and acting as reducing agent this persulphate is likely to destroy ny vitamin which may have been introduced into e bread by the yeast.

I am, Sir, yours faithfully,

Harley-street, W., July 23rd, 1927. JAMES OLIVER.

To the Editor of THE LANCET.

SIR,—With reference to the present controversy n the merits of wholemeal as opposed to white read, the following facts may be of interest. The opulation of the Punjab consists of roughly ,000,000 of people. The immensely larger proporon of this population is concerned, either directly indirectly, in the cultivation of the soil. Their diet nsists of wholemeal bread and dal, varieties of ulses with large quantities of cooked and uncooked getables, and many varieties of fruit. There is no uestion of the wholeness of the meal. It consists of e whole grain coarsely ground in stone querns worked hand and is subjected to very little sifting or sieving. is meal is worked up into a dough with water d patted out into a sort of flat cake between the nds and then lightly scorched upon heated iron eets or "tawas." These cakes of unleavened bread m the staple diet of these millions from whom the lk of the soldiers of the Indian Army are drawn. eaking as a surgeon who has practised and lived ongst these people for the past 25 years, I can tify to the great rarity of such diseases as pendicitis, gastric and duodenal ulcer, gall-stone ease and visceroptosis amongst them, and, finally, the infrequency of cancer in any of its forms. I sh it to be understood that I am referring to the icultural and pastoral tribes of the Punjab and t to the literate and clerical classes, many of ose members have departed in a greater or less gree from the simple habits of their forefathers.

Owing to the irresistible and continuous operation the laws of caste and custom, there can be few ople whose diet has altered less during the past 0 years or so, and in so far as the physical condition a people is an expression of their diet, the physique the average Punjabi may be regarded as the ultant of dietetic factors which have been at work on a whole race for many thousands of years hall be asked, "What are the results of these dietetic tors which have been in continuous operation for many years?"

Vell, to commence with, rickets in any shape or m is rare in the villages. The Punjabi mother kles her own infant. If from any cause the mother nable to suckle her child it usually perishes, since tle-feeding is unknown amongst this people. w many a time have I not seen amongst the women Anglo-Saxon stock the desire and the inability to se their own children. The teeth of the Punjabi magnificent; caries is rare, and it is common to men of 40 years of age and over with 32 teeth and a trace of caries in one of them. The toughness vitality of the Punjabi peasant is proverbial in North of India, and I must reluctantly confess that their physique compares very favourably with that of the inhabitants of these islands.

There is one remarkable respect in which the Indian soldier differs from his British comrade, and that is in his strikingly smaller liability to appendicitis. I took the trouble to work out the averages over a period of some 17 years for the two armies in India, and found that the incidence for British troops was just ten times greater than in the Indian Army. Here we have two bodies of men, either in the prime of life or in the flower of their youth, undergoing the same training, exposed to the same climatic influences, performing the same duties, in which we find that the incidence of appendicitis is just ten times greater in the red meat and white bread eaters than in the wholemeal bread and pulse eaters. The large amount of cellulose in this diet of wholemeal and pulse provides an efficient element of "roughage"—in the absence of which the intestine appears to be unable to perform its functions properly—and leads to a regular and frequent discharge of the waste products of digestion, and a consequent immunity from that intestinal stasis from which all civilised peoples suffer in a greater or less degrees.

To sum up: We find that the nation which subsists on a diet of pulse and wholemeal bread enjoys a striking immunity from the very diseases and disabilities from which our own people suffer so grievously, albeit they are nourished on that wholesome white bread which arouses the admiration of some of our food specialists. On the other hand, we have a C3 race with a dentition so debased and decayed that they are unable even to masticate the emasculated paste which masquerades under the title of bread in this country, mothers who are unable to suckle their own children, widespread stunting and deformity from infantile rickets, an appallingly high percentage of rejections for physical unfitness amongst those recruits who present themselves for the army and navy, and finally a cancer mortality of one death in ten as certified in our bills of mortality returned by the Registrar-General.

He who can find a cause for satisfaction in such a state of affairs must in very truth be a super Mark Tapley.

I am, Sir, yours faithfully,

July 25th, 1927. H. HALLILAY.

To the Editor of THE LANCET.

SIR,—Will you kindly allow me to mention that THE LANCET of Oct. 29th, 1921, states: "The suggestion that the loss of vitamins in the germ may be compensated by baking with yeast has not been substantiated." The Public Health Report of the United States Public Health Service for May 3rd, 1918, describes experiments made on pigeons using fermented white bread, and states: "The addition of yeast (in amounts used by bakers) in the preparation of bread from highly milled flour does not prevent the appearance of polyneuritis in birds fed on this food, but prolongs slightly the period of incubation." Recent researches described by Prof. Drummond show that the "requirements of the higher animals for vitamin B are quantitatively related to the food catabolised in the body." The amount required is, therefore, considerable. Finely ground whole-meal is an easy and cheap method of obtaining our daily need of vitamin B.

The abstraction of mineral salts from white flour is most injurious, for foods which have been deprived of these vital constituents do not support life. Whole wheat contains five times more phosphorus than fine white flour. When combined with the lime found especially in green leafy vegetables the essential phosphate of calcium results by interaction in the body. This is essential for the formation of bone and teeth and the nourishment of the nervous system. Important digestion experiments made by the Royal Society prove that bread containing 90 per cent. of the wheat grain can be generally digested, provided it is ground to a uniform fineness so that every particle will pass through a 16th-inch mesh wire sieve. Bread

and flour constitute about two-fifths of the weight of food consumed by people of limited means, and are almost the sole food of many poor children whose mothers have neither the money nor the time to prepare the varied diet which enables wealthy people to utilise white bread. Scientific experiments and practical experience show that *finely* ground whole wheat meal bread is a healthy, nourishing food, suitable for all classes of the community, and being sold cooked, ready for eating, is a great advantage for poor overworked mothers.

It is hoped that all interested in the welfare of children will study this important subject, and endeavour to secure for the country a bread which will be a real staff of life, and give poor children a better chance of obtaining healthy bodies with good bones and teeth and well-nourished brains and nerves.—I am, Sir, yours faithfully,

MAY YATES,
Founder and Hon. Secretary, The Bread and Food Reform League.

37, Essex-street, London, W.C., July 22nd, 1927.

*** We have received, among other contributions to this controversy, a letter from Dr. Henning Belfrage, reaffirming the position which he took up last week, and suggesting that in view of the different medical opinions enunciated the Medical Research Council should give the matter early attention. —ED. L.

SEPARATION OF "CONTACT" CHILDREN OF TUBERCULOUS FAMILIES FROM HOME INFECTION.

To the Editor of THE LANCET.

SIR,—The experience of the Grancher organisation in France of "boarding out" the "contact" children of school age of tuberculous families, and of Léon Bernard, Debré, and Calmette, of the separation of infants from birth to school age at centres associated with a creche at the Hôpital Laennec, Paris, is well known now in this country as of proved value in the prevention of tuberculosis.

Plymouth made a start in this direction in 1924 by establishing a hostel for "contact" children of all ages, in premises in the suburbs of the town leased from the War Office, and its good work is fairly widely recognised here. Up to the present the hostel has depended on voluntary subscriptions, as the coming flag day on July 23rd, 1927, but the committee believe that they will receive support in the future from public bodies, such as health committees, boards of guardians, and others.

Practically all tuberculosis schemes employ systematically an expensive staff of doctors and health visitors to examine the "contacts," and advise the heads of the family of the necessary measures for prophylaxis, but in the majority of cases there is not the least possible chance for such advice to be carried into effect by the family, owing to adverse social conditions, especially the general lack of accommodation in the home and the loss of wages and income attendant on disablement from the disease. In fact, the examination of "contacts," speaking from a practical aspect, is a great waste of public money, because it begins and ends with advice.

The hostel system of separation of "contact" children, as practised in Plymouth, supplies the required means to the end in view, and is complementary and not a rival to the "boarding-out" system as advocated and practised in this country at St. Leonards-on-Sea by Dr. W. Bolton Tomson, and by the London County Council and by Dr. G. Jackson, F.R.C.S., at Plymouth.

Both systems deserve the support of public health and tuberculosis care committees and the community in general.

I am, Sir, yours faithfully,

F. G. BUSHNELL,
Member Plymouth Borough Public Health and Tuberculosis Care and After Care Committees.

Plymouth, July 15th, 1927.

QUININE AND CHINOSOL SUPPOSITORIES

To the Editor of THE LANCET.

SIR,—Some of the comments by Dr. Norman Ha on the letter published in THE LANCET of July 2 on behalf of the Medical Research Committee of t C.B.C. may confuse your readers. His Americ surgeon friend, who "was convinced" that a pati "had become sterile" as a result of using "chino jelly" is beside the mark; we were not discussi a "jelly," but giving the result of over 800 ca using a *greasy* suppository.

Then Dr. Haire says: "Chinosol has been wid used for this purpose for some years . . . . but t results . . . . have been even less satisfactory th those obtained with quinine," thus implying that th is no novelty in our Committee's communicati On the contrary, members of that Committee initiat discussion on the application of chinosol to cont ceptive problems years ago, and about three ye since they instructed the manufacturer to produ varieties for their investigation. The earlier ty were not satisfactory, but were doubtless (like m things done by the C.B.C.) immediately imitat All accurate evidence is valuable and would appreciated by our Committee, and on its beh I ask Dr. Haire, whose "results with chinosol" *gre* suppositories were "unsatisfactory," what stren chinosol was used and what were the ingredients the suppository?

The perfected form we have tested on over 800 ca can hardly yet have been tested by outsiders as was announced in your columns only on July 2nd

I am, Sir, yours faithfully,

H. V. ROE,
Hon. Secretary, C.B.C., Medical Research Commit

108, Whitfield-street, London W., July 25th, 1927.

CANCER OF THE LUNG.

To the Editor of THE LANCET.

SIR,—I have read Dr. J. B. Duguid's article and y leading article on this subject with much inte (THE LANCET, July 16th, pp. 111 and 125). F the clinician's standpoint it seems desirable to re to one or two points where wrong inferences m possibly be drawn.

Everyone is agreed that the incidence of ca of the lung is high in this district. But I do not th we are agreed that this increase has occurred wi the last few years. I regard Dr. Duguid's Tab as going far to prove that the incidence has l fairly constant for the past 25 years, and that increase began about that length of time Table II. does not seem to me to negative that. must be quite 17 years ago that a well-known profe of pathology at the end of his first week's wor Manchester remarked to me, "We have had two P on cancer of the lung this week, and during all time at —— hospital I only saw a couple." remark seemed to me to show that it is true the incidence in Manchester is greater than elsewh and that it began to be greater a good many y ago—certainly before the influenza epidemic 1918–19. I quote it here as I think the infer may be drawn from your leading article that increase is very recent, and to draw such an infer might at the present juncture have the effec guiding any further investigations in a wrong direc

As a clinician I have one or two other rem to make: (1) It might be assumed that the incid is limited mainly to the working classes. This i no means the case; in Manchester we have several well-known public men from this disea recent years. (2) I have no statistics with rega tobacco, but I think that in almost every case I seen and known of the patient has been a re smoker, generally of cigarettes. To this there been the following exceptions: (*a*) Two ladies succumbed to the disease unusually rapidly.

ch case the lady lived "hard by" a railway station, here trains frequently stopped, and where smoke om the engines must have at almost all times ervaded both house and garden. (*b*) A group of ute adolescent cases, all males, in which I regard e condition as being usually mediastinal Hodgkin's sease.

I was surprised to find when demonstrating two these cases to some members of the American ter-State Post-Graduate Assembly two years ago at they were looked upon quite as curiosities, but have since found that numbers of medical men in is country also have never met with the disease, at least have never recognised it.

I am, Sir, yours faithfully,

Manchester, July 18th, 1927. FRANK E. TYLECOTE.

POOR-LAW HOSPITALS.

To the Editor of THE LANCET.

SIR,—Dr. F. J. O'Donnell's article in THE LANCET July 16th (p. 116) is full of constructive criticism. o touch upon one point only, there can be no uestion that the mass of patients in Poor-law ospitals must provide unrivalled opportunities for inical research. From the surgical standpoint, the hospital is properly equipped, these opportnities are almost inexhaustible. Unfortunately, e professional degradation, which is inseparable om being associated with Poor-law, often deters ose who are best fitted from participating in the ork. At the present time, I think, British surgery considerably hampered by an absurd dilemma. n the one hand, there is the assistant surgeon the large teaching hospital, trained to the hilt, en, and in every way fitted to undertake surgical search, but paralysed because he is "bedless," or most so (according to locality) during what are, tentially, the most productive years of his short e. On the other hand, there are thousands of rgical beds under Poor-law administration, staffed, many instances, by those who have had comratively little surgical training, and have no desire aptitude to further their science and art. It can ly be to the interests of the public and the profession large to see that this absurdity is rectified.

I am, Sir, yours faithfully,

Birmingham, July 18th, 1927. HAMILTON BAILEY.

"TENNIS LEG."

To the Editor of THE LANCET.

SIR,—Your annotation (July 9th, p. 78) and Dr. P. James's letter (July 16th, p. 143) on this subject ll, I hope, help to emphasise the value of early ysical treatment for all muscle injuries when open eration can be avoided—this in spite of the someat scant praise in your annotation which reads: "There can be little doubt, we think, of the benefits be obtained by massage and heat and early or mediate gentle movement in the slighter cases of s not uncommon lesion."

It is always refreshing to see tribute paid to the neer work of Wharton Hood, and it is sad to think, Dr. James tells us, that his book is out of print. annot help feeling, however, that physical treatnt has advanced since Wharton Hood's day, and t perhaps Dr. James might be able to hasten overy still more if he were to avoid the preliminary t for 48 hours. At the end of this time, he advises to "get the patient to walk, or rather hobble, ut."

Among many similar cases, I shall always call to mory one Saturday morning at hospital, where was working hard in my department in order get off in time to go down early to the inter-'varsity rts. About 11.30 the Cambridge first string in high jump hobbled into the department, unable put his heel to the ground; while at practice he ruptured a few fibres of the gastrocnemius at their insertion into the soleus tendon. He arrived well within an hour of the injury, and for the next hour or so I devoted myself to the forlorn hope of being able to turn him out in the afternoon. Not only was he able to jump, but he won the event, and thereby, incidentally, the sports for Cambridge. One of my most treasured letters is that which he wrote me the same evening, in which he says: "You were the means of pulling the fat out of the fire for Cambridge, so we all owe you a debt." Before, and since, I have always regarded the high jump as a dull event, but I still remember the interest it had for me that day, and my anxiety lest the strapping should prove too loose to support adequately, or so firm as to impede freedom.

Would it not be well if the value of physical treatment were more widely recognised for this type of injury, and if opportunity were given to those who carry it out to start their treatment at the earliest possible moment?

I am, Sir, yours faithfully,

Park-crescent, W., July 18th, 1927. JAMES MENNELL.

TETANUS FOLLOWING INTRAMUSCULAR INJECTION OF QUININE.

To the Editor of THE LANCET.

SIR,—I read with great interest Dr. J. Macqueen's note on four cases of tetanus following intramuscular injection of quinine in THE LANCET of June 18th. I had a similar case about three years ago in which the incubation period was considerably longer than in Dr. Macqueen's cases—namely, two months.

An adult, 40 years old, a member of H.H. the Amir Abdulla's staff, suffered from tertian malaria while on pilgrimage in Mecca in 1924. The administration of quinine by the mouth up to 2 g. daily was ineffective. He was then given 1 g. of quinine bihydrochloride into his left deltoid. The rigors stopped and he returned to Amman in perfect health, not even complaining of irritation at the site of injection. Two months later I was called to see him and found that he had already developed trismus and the injection site was sore; no other wound could be detected. He died 24 hours afterwards in spite of intraspinal injection of antitetanic serum.

In this case the skin had been painted with 10 per cent. tincture of iodine; the syringe and needle were boiled for 20 minutes; the quinine ampoule was prepared by a well-known French company; the remaining 11 ampoules of the box were injected into companions of the deceased who are all in perfect health to-day. Nevertheless, it must be admitted that tetanus spores introduced with the needle gave rise after an incubation period of two months to a sudden fatal attack of tetanus.

For the avoidance of such a calamity I suggest that quinine should not be given by intramuscular injection, or if it must be so given, that a prophylactic dose of antitetanic serum should be given at the same time.

I am, Sir, yours faithfully,

DJAMIL F. TUTUNJI,
Private Physician to H.H. the Amir Abdulla.

Amman, Transjordania, Palestine, June 29th, 1927.

THE LATE DR. R. A. BAYLISS.—After a long illness Dr. Richard Arthur Bayliss died on July 6th at Weston Park. He was the son of Richard Bayliss, of Spondon, Derbyshire, and was educated at Loughborough School and St. Thomas's Hospital, London, qualifying as M.R.C.S. Eng. in 1890. He spent two years as house surgeon at Ryde Infirmary, and went to Bath in 1897 as resident medical officer to the Royal Mineral Water Hospital. Later he took up private practice in the town, but in 1912 he had to stop this work owing to poor health. For many years he was connected with the Bath Eastern Dispensary. When he retired he went to live in the western district, and became a member of the parish council. Dr. Bayliss was a man of many interests, including horticulture, photography, and cricket. He was married in 1900 and leaves a widow with a son and a daughter.

BRITISH AND AMERICAN NEUROLOGISTS.

MEETING IN LONDON.

A JOINT meeting of the American Neurological Association and the Section of Neurology of the Royal Society of Medicine has been held in London this week, the chair being occupied successively by Sir JAMES PURVES-STEWART and Dr. CHARLES L. DANA (New York).

At the Tuesday meetings the first paper was one by Dr. BERNARD SACHS (New York) and Dr. SIDNEY SCHWAB (St. Louis) on Symptomatology of a Group of Frontal Lobe Lesions, with a Study of Personality Alterations. The so-called classical symptoms of these lesions were, they said, so often absent that it had been difficult for the surgeon to see the cases at the early stage at which they were operable. They presented a study of 25 cases; in 10 the lesion was in the right frontal lobe, and in 15 it was in the left; and in each case the diagnosis was either confirmed at operation or post mortem. Six of the 25 patients died; five of them died following or soon after operation, whilst the sixth came into hospital suffering from pneumonia and died within 48 hours, not having been operated on. In ten the tumour was a glioma, in seven an endothelioma, in two an abscess, in two a gumma, in one an arachnoid cyst, in one a chronic inflammatory mass surrounded a foreign body, whilst in one there was a large basal-celled carcinoma involving almost the whole left frontal lobe. The symptoms far the most frequently present were emotional changes, and changes in the optic disc. Unilateral tremor was present in only five of the cases, in three of which it was on the side opposite to the lesion. They had not found it a very reliable symptom. They laid much stress diagnostically on a weakness of the lower facial muscles on the side opposite to the lesion and also on the mental change, which was of a gradually progressive character, with a striking weakening of memory for recent events.

Dr. GORDON HOLMES spoke of the many cases of gunshot wounds he had had the opportunity of seeing in which the area damaged was the frontal lobe. In some the mental symptoms were very prominent, though in others there were none. Optic atrophy or disturbance of the sense of smell was to be expected only in the case of basal lesions, when there was direct pressure on the olfactory bulb or tract or upon the optic nerve. He agreed about the significance of facial weakness and mental change.

Dr. JAMES COLLIER agreed with Dr. Gordon Holmes. He then read a paper entitled Retraction and Ptosis of the Eyelids in Ophthalmoplegia. In rare instances, he said, retracted lids might be the only sign of a lesion in the mesencephalon, the lesion in these cases being further forward than was the lesion productive of ptosis and a small pupil. He had seen cases of Parkinsonism which showed ptosis, and he had under care now a case of Graves's disease with marked ptosis.

Dr. W. PENFIELD (New York) read a paper on Cicatricial Contraction in the Brain. This was a study of the actual minute mechanism involved in the healing of cerebral scars, and the movements of cerebral tissue towards the injured area. It was illustrated by microphotographs. His conclusion was that a contracting scar of cerebral tissue must destroy a larger proportion of brain tissue than would result from removal of an equal amount of such tissue by operation.

Dr. GORDON HOLMES and Mr. PERCY SARGENT jointly contributed a paper on Endothelioma Compressing the Optic Chiasma. It dealt with ten cases of this form of tumour arising above the diaphragma sellæ and pressing on the optic nerves. These tumours were accessible to surgery, and where they had not attained a very large size could be completely removed; hence the importance of early diagnosis. The tumour was a typical endothelioma in all ten cases. In three of them it was attached to the anterior clinoid process; in two it was large enou to compress the base of the brain. In one case the were epileptiform seizures, and in one the sense smell was defective. Points in the differentiation these from stalk tumours were given in a table.

Sir EDWARD SHARPEY-SCHAFER (Edinburgh) ga an account of his observations following experiment severance of cutaneous nerves in his own perso He had been able to show that interference wi function produced by squeezing was recovered fro very much sooner than interference caused cutting with a knife.

Mr. NORMAN DOTT (Edinburgh) related a case Unilateral Hydrocephalus in an Infant in which successfully operated. The circumference of the he diminished by 3 cm. in three weeks.

Prof. EDWIN BRAMWELL (Edinburgh) described tw specimens. The first was an intracranial aneurys which arose from the posterior communicating arter The third nerve was flattened out over the surfa of the aneurysm, and immediately surrounding t aneurysm there was much pigmentation of the bra The patient was a woman aged 31, and the histo was of seven weeks' duration. Symptoms were first headache in the frontal region, followed in fortnight by intense pain in the region of the rig eye, with giddiness and vomiting. Diplopia followe with practically complete palsy of the third ner A fortnight after admission to hospital she sudden developed acute symptoms and died, the later pha suggesting rupture of an aneurysm.

The other specimen was to illustrate corti deafness, in a woman aged 62, whose brain I Bramwell exhibited. There must in this case ha been an embolus involving the arterial supply to t temporal lobe on either side. Post mortem, there w seen to be extensive softening involving the upper t temporal convolutions on the left side, and on t right side a softening which, on the surface, involv the supramarginal gyrus and parts of the tempo convolutions. Only five or six cases had be reported, said Dr. Bramwell, in which comple deafness resulted from a bilateral temporal lesion

Dr. J. A. KILLIAN read a paper written by hims and Dr. M. OSNATO (New York) on the Chemi Composition of the Blood and Spinal Fluid n Epilepsy. Many attempts had been made, they sa to ascribe the ætiology of epileptic seizures to a me bolic basis, or to trace those seizures to a change the composition of body fluids, but little biochemi evidence had been produced to support this c tention. Their investigation had shown t epilepsy did not essentially entail impairment of re function, nor of protein metabolism—sufficiently any rate to modify the protein catabolites in blood. At the time of an epileptic seizure there a decrease in the blood cholesterol, and within 24 ho of the seizure the blood contained 15 per cent. cholesterol than did normal blood. There was a in these cases, an increase of lactic acid in the blo

Dr. HENRY COHEN (Liverpool) read a paper sett out the results of his chemical studies on the for tion of the cerebro-spinal fluid. His object was ascertain whether the central nervous system m any contribution to the fluid. He and his colleag were able to show that every known chemical cha in the cerebro-spinal fluid could be grouped un one of four headings: (1) substances normally greater quantity in the blood than in cerebro-sp fluid were always increased in meningitis; (2) s stances always present in greater quantity in cere spinal fluid than in blood decreased in meningi (3) substances which were normally present in blood but normally absent from the spinal fl passed into the spinal fluid in meningitis; (4) s stances injected into the blood and under nor conditions not passing into the cerebro-spinal fluid meningitis passed into that fluid. The explana was that the choroid plexus was damaged meningitis, so that its permeability was increas hence the composition of the cerebro-spinal fl tended to approximate to that of the blood plasm

Dr. J. FAVILL (Chicago) discussed the relation of e ocular muscles to the semicircular canals in tationally induced nystagmus. He had attempted systematise 26 different combinations of endo- mph current or movement and assign to each a ecial response in the form of nystagmus; and he id he was able to predict from his findings the kind nystagmus which would occur. He suggested that is knowledge might be applied to the early cognition of labyrinthitis.

Dr. A. C. BUCKLEY (Philadelphia) read a con- ibution setting out his observations concerning imitive reflexes, as revealed in abnormal mental ates.

Dr. JOHN ECKEL (Buffalo) read a paper by himself id Dr. N. WINKELMAN (Philadelphia) entitled oductive Endarteritis of the Small Cortical Vessels Severe Toxæmias. This was a study of the minute scular changes following the ingestion of tainted eat and other foods, and was illustrated by many des.—Dr. R. M. STEWART said he was interested to e that though one of the patients described had acute phritis and the other had not, the picture presented both was very similar. He thought the miliary ci and the softening which were found might have en due to a mild syphilitic infection of the cortex. Dr. GORDON HOLMES referred to a number of men had seen during the war, who were in a dug-out hen a slowly burning poison shell came into the ench. Ten men were taken from it alive, most of em in an unconscious state. A few days later he as asked to see one of them as he had developed a nfused mental state and various ocular palsies. week later he had seen another of the men, who id suddenly become violently maniacal, and subse- iently died within a few days. He had an oppor- nity of examining some of the brains, and changes ere apparent in them very similar to those Dr. ckel described. In the cases which Dr. Holmes w there was vascular proliferation, considerable crease of reaction in the middle layers of the rtex and in the third and fourth layers. He under- od from chemists that the slow combustion of the ell in question produced large quantities of carbon noxide.—Dr. ECKEL replied that both the blood d spinal fluid gave a negative Wassermann.

Dr. EMANUEL MILLER discussed Mental Dissocia- n, its Relations to Catatonia, and the Mechanism Narcolepsy, based on the case of a woman, aged 26, o complained of periodical attacks of disorientation, ring which she was only vaguely aware of her roundings. There were also periods during which sation was disturbed down the left side of the dy, lasting from a few minutes to several hours. out one in every ten cases of hysteria noticed that a emotion frequently brought on sleep or a state of ntal dissociation. He frequently noticed the ationship between sleep and hypnosis. In hypnosis subject passed through a phase of catalepsy with idity and relaxation.

Dr. ADOLF MAYER (Baltimore) referred to the earches of Dr. Percival Bell on this subject, and ecially on the correlation of lesions in the sub- lamus in connexion with disorders of sleep. The inary person's life consisted of the waking life l the sleeping life, and only the former had been quately studied. How the nervous system was olved in the sleeping life would be one of the most portant spheres of experimentation for the next years.

NATIONAL PLAYING FIELDS.—Lord Woolavington sent a donation of £5000 to the Duke of York's national ing fields appeal. This brings the present total to over 5,000.

ISOLATION HOSPITAL EXTENSION.—Mr. Godfrey ker-Lampson, Under Secretary of State for Foreign irs, has opened the extension of the Hornsey, Wood n, and Finchley Isolation Hospital at Muswell Hill. cost of the extension is estimated at £28,000.

Medical News.

UNIVERSITY OF OXFORD.—At a Congregation held on July 23rd the following degrees were conferred :—

B.M.—O. Hooper, R. C. Probyn-Williams, J. W. Pugh, H. W. Allen, C. Charleson, J. L. Glover, P. F. Cluver, and Irene M. Titcomb.

The Theodore Williams Scholarship in Pathology has been awarded to Joyce Wright, Somerville College, and J. G. Reid, University College.

UNIVERSITY OF CAMBRIDGE.—Henry Barcroft, B.A., of King's College, has been elected to the Michael Foster Studentship awarded annually for the encouragement of research in physiology.

UNIVERSITY OF LONDON.—A meeting of the Senate was held on July 20th, Sir William Beveridge, the Vice-Chancellor, in the chair.

Miss D. L. Mackinnon, D.Sc. Aberd., was appointed as from August 1st, 1927, to the University Chair of Zoology tenable at King's College.

Dr. Mackinnon is at present Reader in Physiology at King's College and has published numerous articles and translations. She is a Fellow of the Royal Society of Tropical Medicine.

Prof. E. H. Kettle, M.D., M.R.C.P. Lond., was appointed as from Oct. 1st, 1927, to the University Chair of Pathology tenable at St. Bartholomew's Hospital Medical College.

Since 1924, Dr. Kettle has been Professor of Pathology and Bacteriology in the Welsh National School of Medicine, Cardiff. He studied at St. Mary's Hospital Medical School and graduated in 1907 taking the M.D. degree in Pathology in 1910. In 1907 he was appointed Assistant Pathologist, and in 1920 Pathologist, to St. Mary's Hospital. Later he became Director of the Department of General and Special Pathology in the newly formed Institute of Pathology and Medical Research. He is Vice-President of the Pathological Section of the Royal Society of Medicine and has examined for the Universities of London and Cambridge.

Mr. Bronislaw Malinowski, D.Sc. Lond., was appointed as from August 1st, 1927, to the University Chair of Anthropology tenable at the London School of Economics.

Mr. W. H. Linnell, Ph.D. Durh., was appointed as from the same date to the University Readership in Pharmaceutical Chemistry tenable at the School of Pharmacy.

Since October, 1926, Dr. Linnell has been Lecturer in Pharmaceutical Chemistry and Director of the Chemical Research Laboratories at this School.

The London School of Hygiene and Tropical Medicine (Departments of Bacteriology and Immunology, and of Epidemiology and Vital Statistics) was admitted as a School of the University, and the date of the appointment of Prof. W. W. C. Topley and Dr. Major Greenwood to the respective University Chairs in these subjects, tenable at this School, was changed from August 1st, 1928, to Oct. 1st, 1927.

The degree of D.Sc. was conferred on Mr. A. S. Parkes, of University College, for a thesis on the Occurrence of the Œstral Cycle after X Ray Sterilisation.

At recent examinations, the following candidates were approved :—

M.D.

In Medicine.—W. L. Ackerman, London Hospital; Doris M. Baker, St. Mary's Hospital; John Bevan-Jones, University College Hospital; T. S. Blacklidge, Guy's Hospital; R. T. Brain, London Hospital; Grace D. Chambers. London (R.F.H.) School of Medicine for Women and St. Mary's Hospital; A. C. M. Elman, University College Hospital; J. A. James, University of Bristol and London Hospital; A. T. Jones, University College Hospital; Georges Klionsky, St. Bartholomew's Hospital; Marjorie Low, London (R.F.H.) School of Medicine for Women; H. V. Morlock, St. Bartholomew's Hospital; Jean L. Smith, University College, Cardiff, and Charing Cross Hospital; Hilda N. Stoessiger, London (R.F.H.) School of Medicine for Women; H. C. C. Taylor, Guy's Hospital; Joseph Whitby, Middlesex Hospital, and Caroline I. Wright, Charing Cross Hospital.

In Pathology.—Joan M. Ross, St. Mary's Hospital; Doris M. Stone, London (R.F.H.) School of Medicine for Women.

In Psychological Medicine.—G. C. Berg, St. Thomas's Hospital; May K. Ruddy, Charing Cross Hospital.

In Midwifery and Diseases of Women.—F. C. Alton, St. Thomas's Hospital; Harold Burt-White (*University Medal*), St. Bartholomew's Hospital; Dorothy N. L. Leverkus, London (R.F.H.) School of Medicine for Women.

In State Medicine.—E. K. Macdonald, St. Thomas's Hospital and Royal Institute of Public Health.

M.S.

In Surgery.—D. H. Patey, Middlesex Hospital.

ROYAL SOCIETY OF MEDICINE.—The Society's house will be closed during August for the annual cleaning and repairs. The library will be open on week-days (excluding Monday, August 1st) from 11 A.M. to 6 P.M., except on Saturdays, when it will close at 1 P.M.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates passed in the undermentioned subjects:—

Surgery.—L. Ashkenza, Middlesex Hosp.; E. Clayton-Jones, Guy's Hosp. J. Miller, St. Bart.'s Hosp.; J. D. Ritchie, St. George's Hosp.; and E. A. Stroud, Birmingham.

Medicine.—A. F. Briglmen, Edinburgh; E. Clayton-Jones, Guy's Hosp.; W. H. Collins, London Hosp.; and B. Elliott, Durham.

Forensic Medicine.—S. A. Carr, Birmingham; E. Clayton-Jones, Guy's Hosp.; S. Goldman, London Hosp.; and S. B. S. Smith, St. Bart.'s Hosp.

Midwifery.—E. Clayton-Jones, Guy's Hosp.; P. F. Fanaken, St. Mary's Hosp.; and J. D. Ritchie, St. George's Hosp.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery: E. A. Stroud and E. Clayton-Jones.

UNIVERSITY OF EDINBURGH.—The Earl of Balfour, as Chancellor of the University, presided on July 28th, when the honorary degree of Doctor of Laws was conferred on the following members of the medical profession:—Prof. Vittorio Ascoli, Prof. Harvey Cushing, Prof. C. L. Dana, Lord Dawson of Penn, Prof. Archibald Donald, Dr. C. E. Douglas, Prof. Knud Faber, Sir William Hale-White, Prof. Jan van der Hoeve, Mr. R. G. Hogarth, Dr. William Hunter, Prof. Otto Meyerhof, Prof. T. H. Milroy, Sir Berkeley Moynihan, Prof. Otto Naegeli (in absentia), Sir John Parsons, Sir Humphry Rolleston, Prof. G. F. Still, Prof. W. S. Thayer, Mr. Wilfred Trotter, Dr. T. M. Tuffier, and Sir Almroth Wright.

The University Court has received the resignation of Prof. G. Lovell Gulland from the chair of medicine.

SCOTTISH BOARD OF HEALTH.—The Board has appointed Dr. Alexander James Muirhead and Dr. Hugh Miller to be district medical officers (medical referees). Both Dr. Muirhead and Dr. Miller have been for some years engaged in private and panel practice.

THE HOMŒOPATHIC CONGRESS.—The ninth quinquennial Congress of Homœopathic Practitioners was held recently in London. Medical men and women from North and South America, India, and from many European countries were present, and medical, surgical, and special subjects were discussed in 12 different sections, some 70 papers being read in English, French, and German. The treatment of cancer was discussed by many speakers, and it was agreed that recovery from the disease may occur without surgical intervention. The view was generally adopted that some constitutional condition underlies and precedes the local lesion and that medicinal treatment, to have prospect of success, must stimulate the body to supply the necessary antidotal or protective substances.

THE LATE DR. H. C. NIXON.—The death is announced of Dr. Horace Clulow Nixon, physician to the Royal Mineral Water Hospital, Bath, and late medical superintendent of the Ministry of Pensions Hospital, Harrogate. Born at Leek in Staffordshire in 1877, he was the son of Benjamin Barlow Nixon, and was educated at Sedbergh School, St. Bartholomew's Hospital, and the Universities of Dublin and Edinburgh. Graduating M.B. Edin. in 1900, he became assistant demonstrator of pathology in the University, and later house surgeon at Huddersfield Royal Infirmary. Thence he went to the North Staffordshire Infirmary, where he worked until 1905. In 1904 he proceeded to the M.D. degree with commendation. During the late war he served as surgeon in the navy, and he afterwards was medical officer in charge of out-patients at Edmonton Military Hospital. He went to Bath from Harrogate about three years ago. Dr. Nixon was an accomplished pianist and composed songs and pianoforte music under the name of Horace Clulow. He leaves a widow and a youn daughter.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A special course in Diseases of Infants has been arranged by Dr. Eric Pritchard to take place at the Infants Hospital from August 8th to 21st, and will occupy each afternoon from 2 P.M. On both Saturdays and on one Sunday special visits to institutions have been arranged. From August 29th to Sept. 10th an all-day course will be held at the Queen Mary's Hospital, Stratford, including demonstrations of medical, surgical, orthopædic, and ophthalmic cases, besides operations and lectures. The subjects of special courses in September will be: medicine, surgery, and the specialties at the Westminster Hospital; diseases of children at the Queen's Hospital; psychological medicine at the Bethlem Royal Hospital; ophthalmology at the Royal Westminster Ophthalmic Hospital, and orthopædics at the Royal National Orthopædic Hospital. The Fellowship also arranges a general course of instruction at the associated hospitals; particulars will be sent on request. Copies of all syllabuses and of the *Post-Graduate Medical Journal* (annual subscription 6*s.*, post free) may be had from the Secretary at 1, Wimpole-street, London, W. 1.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

POOR-LAW RELIEF IN WEST HAM.

ON Thursday, July 14th, Mr. BARNES moved:—

"That an humble Address be presented to His Majes praying that the Order, dated the 17th day of June, 1927, ma by the Minister of Health under the Board of Guardians (Defaul Act, 1926, and entitled the West Ham Union Default Ord (Continuation) Order, 1927, be annulled."

He said that when the Guardians (Default) Act w introduced last year the Minister of Health had proposa before the country for the reorganisation of the Poor-la and the Minister described the Default Bill as a tempora measure. Now political circumstances appeared to making the reorganisation of the Poor-law, as far as a ne Act of Parliament was concerned, rather remote. Therefo he thought that those who represented the West Ha district were entitled before another six months' period administration and power were given to the appointe guardians to have a full statement of the Minister's polic and his views in regard to the Union of West Ham. wished to submit to the Minister that instead of continui the board of appointed guardians in this district for further six months it would be better to have a full a impartial inquiry into the whole of the circumstances.

The Effect on Mothers.

Mr. GROVES seconded the motion. He said that t reduction in relief granted in West Ham had meant maln trition in mothers, and the fever hospital was full. T list of women waiting to enter the sanatorium was ve much greater at this moment than before. Dr. and M Watkins, and the matron, Miss Davis, of the Plaist Maternity Home, stated that since the reduction of rel in West Ham the constitutional and physical appearar of the mothers and children attending the Plaistow matern clinic was obviously a process of deterioration. With rega to infantile mortality up to 1919, West Ham was amon the highest of the industrial towns in the country. Betwe 1919 and 1926—in the era of this assumed extravaga Poor-law relief—it was an evident fact that the infan mortality of West Ham was amongst the lowest of t industrial towns, and since 1926 the rate was stead moving in the wrong direction. The guardians had presen Report No. 2, in which they indicated that they had redu the amount of relief per person from 8*s.* 5½*d.* to 5*s.* 6½*d.* week per head. For the week ending March 19th, 1927, 1 school-children who previously were fed in their own hom their parents being in receipt of Poor-law relief, had atten the dining centres connected with the schools because th parents had had their relief drastically reduced by the n board of guardians. Connected with the county boro of West Ham there was a department associated with th clinic and maternity centres where they supplied dried m a commodity which was accepted by the Ministry of Hea and the medical profession generally as being a very nutriti form of food. To the very poor people they gave away packets of the dried milk. When the applicants were destitute they sold the milk at half price, and in many c where people could afford to pay they sold it at cost pr Some 8402 persons who used to pay the full amount could not do so, and came to them to obtain the dried m at half price. There had been 12,150 extra packets of milk supplied, which cost £607 10*s.*, and 388 additio packets of milk at half price, at a cost of £9 14*s.* A result of the reduction in the amount of Poor-law r people had been forced to demand this social service f the county borough of West Ham, and they had incur in addition to the £10,988 18*s.* on extra meals supplied additional expenditure of £617 4*s.* in supplying dried m He did not think that the Minister of Health would dis the general statements of medical officers of health it seemed almost impossible to arrest the progress of tu culosis while unemployment and destitution prevaile this country. The policy of the present guardians in W Ham was a policy of hardship and a policy of persecu of the very poor.

A Comparison in Vital Statistics.

Miss SUSAN LAWRENCE said she was going to mal comparison in vital statistics between West and East Ha

Year.	London.	West Ham.	East Ham.	Year.	London.	West Ham.	E Ha
1919	13·6	13·3	9·9	1923	11·4	10·6	
1920	12·8	12·9	10·3	1924	12·2	11·5	8
1921	12·5	12·1	10·2	1925	11·9	10·8	12
1922	13·5	13·3	11	1926	11·4	10·6	4

ondon, and Kensington. The general death-rates for ondon, West Ham, and East Ham for a period of eight ears were shown in the table given above.

All through these eight years West Ham, with its desperate overty, was only once above the London general death-ate per 1000, and East Ham had always been below it. he would take a much more sensitive figure—the rate of fantile mortality over the eight years. There was a idden and beneficent change in the general infantile ortality-rate after the year 1918, and London dropped om 108 to 85. Each year it had gone down with some cillations, until it had reached 64. During those years est Ham was only three times worse than London. East am was only once worse than the London level, and that as last year. The figures were:—

Year.	London.	West Ham.	East Ham.	Year.	London.	West Ham.	East Ham.
1919	85	86	69	1923	61	60	51
1920	76	74	60	1924	69	78	54
1921	81	75	63	1925	68	66	53
1922	75	81	62	1926	64	56	68

It would be seen that 1926 was the first year in which ast Ham was above the London figure, and that was due an extraordinary first quarter, when the infantile mortality uched the unprecedented figure of 97. Considering the hness of London it was a miraculous thing that West am should be so often a little below the London average. ow she would take Kensington, and ask the House to note w the West Ham mortality figures under their guardians d their town council compared with those of Kensington:—

Year.	West Ham.	Kensington.	Year.	West Ham.	Kensington.
1919	86	102	1923	60	70
1920	74	83	1924	78	75
1921	75	107	1925	66	79
1922	81	84	1926	56	61

According to the figures of the medical officer of health Kensington the death-rate in North Kensington in 1922 s 91; in 1923 in West Ham it was 60, and in North ensington 86; in 1924 the figure for West Ham was 78, d in North Kensington 87. In 1925 in West Ham the ure was 66, and in North Kensington 88. In 1926 the ure for West Ham was 56, and for North Kensington 79. est Ham was a district which bordered on the river, and ne of it had been reclaimed from the river, and even now was flooded at certain times, whilst North Kensington s situated in a healthy district. The only thing in ich they could say that West Ham was better off than rth Kensington was that it used to have guardians who l look after the poor, and the only difference was in the le of relief which had been adopted. She had shown t the rate of infantile mortality in West Ham over a g period had been very unsatisfactory. The figures the last two quarters of 1926 did not show any very at change, the West Ham figures following the London ures at a rather increasing distance. Taking the quarter led in September, 1925, in London the infantile mortality s 55, and in the quarter ended September, 1926, it was In West Ham it dropped with London from 59 in ptember, 1925, to 55 in September, 1926. In the last arter of 1925 the figure in London was 88, and in the last arter of 1926 it was 74. In West Ham it was 72 in the quarter of 1925, and 69 in the last quarter of 1926. e Registrar-General's figures for the spring quarter wed a rise of five points in the infantile mortality over whole of London, as compared with the corresponding arter ending on March 31st, 1926. The figure was 71 March, 1926, and 76 in April, 1927. The West Ham figures wever, according to the Registrar-General, showed a jump 33 points, the infantile mortality in West Ham in the arter ending on March 31st, 1926, being 56, while in the arter ending on March 31st, 1927, it was 89. That was errific jump. In East Ham there was a phenomenal t quarter in 1926, with a mortality of 97. A year before was only 58 in the corresponding quarter, and this year was 98. She knew how difficult it was to deal with ntile mortality figures over a short period, and that one ht to be extremely cautious in drawing any conclusion. re did not seem to be any general disturbing cause, such he weather, or the London figures would have shown it. could she find any evidence of infantile epidemics icient to account for it. It seemed to her highly probable t the restriction of relief had made the mothers in much se case to face confinement and birth than they were ear ago. That view was somewhat confirmed by the ers of the infirmary. What she was asking was that the Minister should grant an inquiry. She had given the gross infantile mortality figures. The real index, however, was not the deaths under 1 year, but the deaths under 1 month and under 1 week. If they could have those, and add to them the figures for stillbirths and miscarriages for the period, they would get what was the most sensitive index of all—namely, the condition of the mothers at the time when they came to bring forth children. She urged that they should have a really scientific investigation, showing the effect of liberal relief and of restricted relief.

The Reply of the Minister of Health.

Mr. CHAMBERLAIN, replying to the debate, said it was quite true that West Ham in the past had a very good record in the matter of vital statistics, and he was disposed to take the infantile mortality-rate as a very fair measure of the general condition, not merely of the infant population, but of the population as a whole. It was quite true that for some considerable time the infantile mortality-rate in the West Ham Union had been well below 105 of the big towns in the whole of Great Britain. In January of this year the rate in the great towns was 100, and in West Ham it was 91. In February the figure was 114 in the great towns and only 94 in West Ham. In March the figure for the great towns was 87, and 84 in West Ham. Only in one month—April—were the figures in West Ham actually higher than in the great towns. He thought they were 74 for the great towns and 82 for West Ham. Hon. Members had evidently done hard labour to try to find some cases which would throw discredit on the West Ham guardians. Yet they had been extraordinarily unsuccessful. The charges which had been made against the guardians had not been substantiated. The old guardians were done away with because they were no longer able to perform their functions for financial reasons. When they got a saving at the rate of nearly £1,000,000 a year without inflicting any serious hardship or injury on any deserving person, it seemed to him that they had shown to demonstration and beyond the possibility of contradiction that the condition of the Union was due not to the circumstances, bad as they might be, in which it found itself through exceptional unemployment and the want of any large section of well-to-do people, but to methods which were quite unnecessary and which had gradually led to general demoralisation. Under the new guardians the examination of individual cases was done with a care which was entirely new to West Ham, and the relief which was given was adapted to the needs of the individual instead of being given indiscriminately. Improved accommodation had been provided for the hospital staff, workshops had been provided for the training of mental defectives, and consideration was now being given to the treatment and the nursing of the sick poor in their own homes. It was quite clear that if the present guardians were removed from office and they returned to the system of election they would return again to the chaos and demoralisation which existed before. Such a reactionary step would be a disaster for West Ham.

The motion for the Address was negatived by 170 votes to 68.

HOUSE OF LORDS.

MONDAY, JULY 18TH.

MEDICAL AND DENTISTS ACTS AMENDMENT BILL.

The Earl of PLYMOUTH (Captain Gentleman-at-Arms), in moving the second reading of the Medical and Dentists Acts Amendment Bill, said that as a result of the establishment of the Irish Free State, and of the legislation consequent thereon, medical students of universities in the Irish Free State graduating after December 6th, 1922, ceased to be entitled to registration as a right by the General Medical Council (that was, they ceased to be entitled to practise in this country), and the General Medical Council ceased to have any authority over the medical profession and any control over medical education in the Irish Free State. That state of affairs was regarded by the authorities both in the Irish Free State and in this country as undesirable; and at the request of the Irish Free State Government negotiations were begun in 1923 with a view to the restoration, as far as was consistent with the altered status of the Irish Free State, of the position existing prior to the establishment of the Irish Free State. Meanwhile, the General Medical Council agreed to continue to enter medical graduates from the Irish Free State on the register pending the passage of such legislation as it might eventually be decided to introduce. But all such registrations since December 6th, 1922, had no legal validity, and one of the objects of the present Bill was to validate them. The negotiations referred to had for various reasons been prolonged; but they had at length resulted in the agreement which appeared as Part I. of the schedule to this Bill. Sir Donald MacAlister, the President of the General Medical Council, had taken a prominent part in all the negotiations, and the agreement

had the concurrence and support of the Council. It would also be observed that the agreement had been signed by Sir Richard Dawson Bates, Minister of Home Affairs, on behalf of Northern Ireland. The agreement provided for the creation of a Medical Council in the Irish Free State which would establish an Irish Free State Register (to which all medical practitioners registered in this country and Northern Ireland would be admissible as of right) and would have complete control of that register and of the profession in the Irish Free State. On the other hand, the General Medical Council would continue to admit to the United Kingdom Register all persons who, prior to the establishment of the Irish Free State, would have been admissible thereto in respect of qualifications obtained in the Irish Free State, and for the purpose of keeping the United Kingdom Register and controlling the examinations giving the right of admission thereto the Council would retain in the Irish Free State, all the powers formerly possessed by them. Certain alterations in the Irish representation on the Council consequential on the establishment of the Irish Free State were made by Article 2 of the agreement.

The Dental Agreement.

On the completion of the medical negotiations, said the Earl of Plymouth, discussions were opened regarding the dental profession, in which an almost precisely similar state of affairs had arisen. Sir Francis Acland, chairman of the Dental Board of the United Kingdom, took part in the discussions, and no difficulty was found in reaching an agreement very similar to the medical agreement. That agreement would be found in Part II. of the schedule. Both agreements required legislation both in the Irish Free State Parliament and in the British Parliament. An Act confirming the medical agreement had already been passed in the Irish Free State and had received Royal Assent, and it was very desirable that the agreement should be brought into force as soon as possible by the passage of this Bill. The Irish Free State Bill to confirm the dental agreement had not yet been passed into law, but it was anticipated that it would be reintroduced and passed into law at an early date. The Irish Free State legislation, in addition to confirming the agreements, had to provide for the establishment of the new medical and dental authorities in the Irish Free State; it was therefore much longer and more complicated than the present Bill, and for that reason had been divided into two Bills. There was no necessity for a similar division of the legislation on this side.

The Bill was read a second time.

POLLUTION OF RIVERS.

Lord MILDMAY OF FLETE called attention to the position in relation to the pollution of rivers. He said that on Feb. 15th last the Lord President of the Council on behalf of the Prime Minister received a very representative deputation which approached him with a view to impressing upon the Government the necessity of dealing with the growing menace of river pollution. Their case in effect urged what had been proposed over and over again by many Royal Commissions and committees for 50 years past. They asked that a central authority should be established to control inland waters and that local river boards should be created in support of that central authority. They also urged the necessity for scientific research designed to solve the innumerable problems attendant on the abatement of pollution. The deputation was organised by a joint committee of the British Waterworks Association and the Salmon and Trout Association, but the two associations were supported by many other bodies, including the National Association of Fishery Boards, the Association of Medical Officers of Health, the Federation of British Industries and the Federation of British Anglers, the Council for the Preservation of Rural England, and the Pure Rivers Society.

Two Methods of Attacking the Problem.

The Earl of BALFOUR, Lord President of the Council, said the Government were entirely in agreement with Lord Mildmay that the pollution of rivers was a great evil and an evil which was increasing. Population was growing, and with population inevitably came the difficulties of sewage. The habits of the people were altering, and they were altering in a manner which, very admirable in itself, inflicted a greater and greater strain on the water-supplies of the country. The pollution from manufacturing sources was augmented at the same time. There were only two possible means, so far as he was aware, by which this embarrassing problem could be attacked. One was increased efficiency of administration, and the other was increased knowledge. The Government proposed to do all they could to further the first method of attack. In many cases it was quite impossible to give a decision in favour of the purity of rivers and against the continuance of manufactures. It was on the manufactures that the population lived. The only possible way of dealing with the situation was to find some scientific method by which they would be able to get over the difficulty which was presented not by th weakness of the law, but by the difficulty of dealing wit the laws of nature. He entirely agreed, however, tha more coöperation was required, and that it was well wort considering whether the present system of river boarc administration might not be extended with advantag and that possibly fresh legislation, or whether the amendmer of existing legislation, might be carried through. The bod which was to deal with that should not be a department body, but an inter-departmental body. It could not be a executive body, as some of his noble friend's supporte would desire. That would mean a new Government Depar ment with a Minister responsible to Parliament. But th Government did think that there should be an advisor committee representing the Ministry of Health and th fishery boards, and they had already decided on the chairma of that Committee, Sir Horace Monro. The Committee wou set to work to deal in an advisory capacity with ne legislation, with setting up new river boards, with inducir responsible local bodies to coöperate with each other ar with carrying out all those admirable objects on which h noble friend had dilated. But do not let their Lordshi suppose that nothing was being done, or had been don to diminish the curse of polluted rivers. The worst of the sources of pollution was sewage, and he was informe that in the financial year ended March 31st last loans we sanctioned by the Minister of Health of no less th £2,500,000, not for dealing with sewage as a whole, but f diminishing the sources of sewage. Authority was giv for loans amounting to £5,000,000 to deal with sewag and one-half of that sum had been devoted to the purpo of preventing sewage from further polluting the rivers this country. He hoped and believed that their knowled of how to deal with the greatest of all the evils—name sewage—was increasing. There was a Royal Commissi which before the war made a very large number of repor and made special mention of a method of dealing with sewa called by the somewhat unattractive name of activat sludge, which they were of opinion was of great promi It had been largely used in the Birmingham area and el where. There still remained much to be done in bring that process, and perhaps others, to the point of succe but on the Committee dealing with the scientific and resea side of this problem, which was being set up by the Gove ment, the gentleman who was at the head of the admira work done in the Birmingham district would find a pla

The Scientific Research Committee.

He could give the names of those who would form Scientific Research Committee. They were: Sir Rot Robertson, K.B.E., F.R.S., Prof. V. H. Blackman, F.R Prof. F. G. Donnan, C.B.E., F.R.S., Sir Alexander Houst K.B.E., C.V.O., Mr. H. C. Whitehead, M.I.C.E., and Dr Bourne, F.R.S. To these gentlemen would be added assessors Mr. H. G. Maurice, C.B., Ministry of Agricult and Fisheries; Mr. W. L. Calderwood, F.R.S.E., Fish Board for Scotland; Mr. D. Ronald, M.I.C.E., F.R.S. Scottish Board of Health; and Mr. R. J. Simpson, O.B. Ministry of Health. The Director was Dr. H. T. Calv M.B.E., who was, he supposed, the highest authority this kind of investigation that they possessed. T Water Pollution Research Board was actually at w Research was also going on in Germany and Ame and also in Holland and other countries. The new Bo would see that all the information which was of value distributed to the authorities who were responsible for purity of our streams.

TUESDAY, JULY 26TH.

Bills Advanced.

The Midwives and Maternity Homes (Scotland) Bill the Medical and Dentists Acts Amendment Bill were re third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, JULY 20TH.

Tuberculosis among Slate Quarrymen.

Sir ROBERT THOMAS asked the Home Secretary whe his attention had been drawn to the far higher percen of tuberculosis among slate quarrymen working in sl as compared with those employed in the open air, o to the injurious effect of dust in confined spaces; whether he would approach quarry owners with a vie devising practical means of improving conditions.- BURTON CHADWICK (Parliamentary Secretary to the B of Trade) replied: The report of a recent inquiry ca out under the Welsh Board of Health among slate qu men and slate workers in the Gwyrfai Rural District, s that slate workers in sheds there are exposed to inju dust, and that mortality from tuberculosis is higher a such workers than among quarriers. My right hon. f is considering, with his Health Advisory Committee

ggestions in the report for further investigation, and eanwhile the question of improving conditions has been ken up with the slate quarry owners by H.M. inspectors.

Birth-rate in London Boroughs.

Sir WILLIAM DAVISON asked the Minister of Health the rth-rate per 1000 in each of the London boroughs for the ears 1901, 1911, 1925, and 1926 respectively.—Sir KINGSLEY OOD (Parliamentary Secretary to the Ministry of Health) plied: The following figures give the birth-rate per 00 population in metropolitan boroughs for 1926:—

Borough.	1926.	Borough.	1926.
ty of London	8·0	Kensington	15·1
ner and Middle Temple	6·9	Lambeth	17·2
ttersea	17·3	Lewisham	15·4
rmondsey	20·7	Paddington	15·4
thnal Green	20·9	Poplar	21·6
mberwell	16·6	St. Marylebone	12·8
elsea	13·3	St. Pancras	16·7
ptford	18·2	Shoreditch	23·3
nsbury	20·6	Southwark	20·2
lham	16·3	Stepney	19·7
eenwich	17·7	Stoke Newington ..	15·6
ckney	17·3	Wandsworth	14·3
mmersmith	16·3	Westminster	11·3
mpstead	12·3	Woolwich	16·8
lborn	12·4	Administrative County of London	17·1
ington	18·5		

Birth-Rates in Europe.

Sir WILLIAM DAVISON asked the Minister of Health the th-rate per 1000 in Great Britain and for the principal ntries in Europe for the last year in respect of which tistics were available.—Sir KINGSLEY WOOD replied: e following figures give the birth-rate per 1000 popula-n:—

. Britain ..	1926 ..	18·1	Nether ands	1926 ..	23·8*
	1925 ..	18·6	Belgium ..	1925 ..	19·6
gland and Wales ..	1926 ..	17·8	Spain	1925 ..	29·4*
	1925 ..	18·3	Hungary ..	1926 ..	26·7*
otland ..	1926 ..	20·9	Czechoslovakia	1925 ..	25·1
	1925 ..	21·3	Austria	1924 ..	21·7*
eden ..	1926 ..	16·9*	Italy	1925 ..	27·5*
nce	1926 ..	18·8*	Bulgaria ..	1924 ..	39·7*
land ..	1925 ..	22·3	Norway	1925 ..	20·0
rmany ..	1925 ..	21·3	R.S.F.S. de la Russie† ..	1924 ..	43·6*
nmark ..	1924 ..	21·9	R.S.S. de l'Ukraine‡	1923 ..	35·4
itzerland ..	1925 ..	18·4			

* Provisional.

Republique Socialiste Federative Sovetique de la Russie. ese are the only parts of Russia in Europe for which figures available.

Republique Socialiste Sovetique de l'Ukraine.

One-Apartment Houses in Scotland.

Mr. BUCHANAN asked the Secretary of State for Scotland total number of one-apartment houses built in Scotland l the total number of two-apartment houses built since 9.—Sir J. GILMOUR replied: As at June 30th last no -apartment houses and 7222 two-apartment houses e built in Scotland since 1919 under State-assisted sing schemes. No reliable information is available as to ses of one and two apartments built without State assist-e during that period, but such information as I possess icates that the number is very small.

Appointments.

ACKSTOCK, W. P., M.B., Ch. B. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Cottingham District of the County of Northampton.

RRAY, J. DOUGLAS R., F.R.C.S. Eng., Resident Medical Officer, Bolingbroke Hospital Incorporated, Wandsworth Common.

SSELL, V. I., M.D., B.S. Lond., Obstetrician to the Elizabeth Garrett Anderson Hospital.

ISHAW, E. M., M.B., B.S. Lond., M.R.C.S., L.R.C.P., Lond., Assistant Pathological Chemist to St. Mary's Hospital.

stminster Hospital: HODGES, R. C., M.B., B.Ch. Oxf., L.R.C.P., M.R.C.S. Lond., House Physician: EVANS, E. C., M.R.C.S., L.R.C.P. Lond., STANTON, R., M.R.C.S., L.R.C.P. Lond., House Surgeons.

Vacancies.

For further information refer to the advertisement columns.

ociation of Surgeons of Great Britain and Ireland, 51, Wimpole-street, W.—Surgical Scholarship. £350.

Bbados, B.W.I., Parish of St. Andrew.—M.O. £300.

Bkenham Urban District Council.—M.O.H. and School M.O. £900.

Bningham, Selly Oak Hospital.—Med. Supt., &c. £1000.

Bngbroke Hospital, Wandsworth Common, S.W.—H.S. At rate of £120.

Bradford, Municipal General Hospital, St. Luke's.—H.P.'s and S.'s. Each at rate of £200.

Brighton, Royal Sussex County Hospital.—Hon. Dermatologist.

Carmarthen, Joint Counties Mental Hospital.—Sen. Asst. M.O. £450.

Charing Cross Hospital, W.C.—Res. M.O. £400.

Colchester, Essex County Hospital.—H.S. £150–£200.

Colindale Hospitol, Hendon, N.W.—Jun. Asst. M.O. £500.

Coventry and Warwickshire Hospital.—Two Res. H.S.'s. Each £125.

Dunedin, New Zealand, University of Otago.—Sen. Demonstrator in Dept. of Pathology. £400–£500.

Fiji Government.—Dist. M.O. £500.

Greenock Corporation.—M.O.H. £1000.

Hereford, Herefordshire General Hospital.—H.S. £150.

Hove Hospital, Sussex.—Res. M.O. £150.

Hull Royal Infirmary.—Asst. H.S. £150.

Hull Royal Infirmary.—Cas. H.S. At rate of £150.

L.C.C. Public Health Dept.—Asst. Aurist. £240 9*s.* 2*d.*

Manchester, Ancoats Hospital.—Res. Surg. O. £200.

Manchester Ear Hospital, Grosvenor-square.—H.S.

Manor House Hospital, Golders Green, N.W.—H.S. At rate of £200.

Northamptonshire County Council.—Tuberculosis O. £750.

Plymouth, Homœopathic and General Hospital.—H.S. At rate of £100.

Queen's Hospital for Children, Hackney-road, E.—Cas. O. At rate of £100.

Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. At rate of £150.

Scarborough Hospital and Dispensary.—Two H.S.'s. At rate of £126 each.

Sheffield Royal Hospital.—Res. Surg. O. £200.

Southampton, Royal South Hants and Southampton Hospital.—Sen. H.S. £200.

Staffordshire County Council, County Laboratory, Lichfield.—Bacteriologist (Locum Tenens). £10 10*s.* weekly.

Swansea Hospital.—H.S. £150.

University of London, University College.—Asst. in Dept. of Physiology. £250–£300.

West Ham Union.—Two Dist. M.O.'s and Pub. Vaccs. Each £800.

THE Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Morley, York, W.R.; Deal, Kent; and Holt, Norfolk.

Births, Marriages, and Deaths.

BIRTHS.

LUMSDEN.—On July 12th, at Ravensholme, Staines, the wife of Alexander Gow Lumsden, M.B., Ch.B., of a daughter.

MACKIE.—On July 13th, at Thornyhill, Malvern, the wife of Dr. George Mackie, D.S.O., T.D., of a daughter.

MARRIAGES.

BUTTER—LAING.—On July 19th, at Bridge of Allan, A. J. M. Butter, M.A., M.D., of Highgate, London, to Ena M. Laing, M.B., Ch.B., of Alloa, Scotland.

HOWE—REIS.—On July 21st, at All Saints Church, Friern Barnet, Wilfred Fildes Howe, L.D.S. R.C.S., to Dorothea Harriett Reis, niece of F. E. W. Nichols, of North Finchley.

STADDON—PEARCE.—On July 20th, at St. John's Church, Ipswich, Lt.-Col. Henry Ernest Staddon, R.A.M.C. (retd.), to Winifred, widow of A. J. Pearce, of Ipswich.

DEATHS.

BROOKFIELD. — On July 19th, at his residence, Phillimore-gardens, Kensington, John Storrs Brookfield, M.D., J.P., aged 82.

DAVIES.—On July 18th, in London, John Morgan Lloyd Davies, M.D., J.P., of Glanafon, Haverfordwest, aged 71.

EARLE.—On July 20th, at Sion-hill, Bath, Leslie Meredith Earle, M.D.

SCALES.—On July 6th, 1927, at 14, Northdown-avenue, Margate, Cedric Kennedy Scales, M.B., B.S. Lond., aged 32. He suffered much pain and with knowledge displayed the utmost fortitude.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.

TUESDAY, August 2nd.—3.15 P.M., Mr. C. S. Lane-Roberts: Abdominal Pain in Pregnancy.

INDEX TO "THE LANCET," VOL. I., 1927.

THE Index and Title-page to Vol. I., 1927, which was completed with the issue of June 25th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

Notes, Comments, and Abstracts.

BASUTOLAND: A YEAR'S PUBLIC HEALTH WORK.

Mr. R. B. Smith, Government Secretary, has presented his report on the affairs of Basutoland for the year 1926. The area of the territory, which is bounded on the west by the Orange Free State, on the north by the Orange Free State and Natal, on the east by Natal and East Griqualand, and on the south by the Cape Province, is given as 11,716 square miles. The altitude varies from 5000 ft. to 11,000 ft. above sea-level, and the climate is, on the whole, healthy. In 1818 the first Paramount Chief, Moshesh, gathered together the remnants of the various tribes which had been scattered about South Africa during the wars waged by Moselekatse and thus founded what to-day has become the Basuto nation, consisting of upwards of 540,000 souls. The territory has since 1884 been governed by a Resident Commissioner under the direction of the High Commissioner for South Africa. There were no faction fights of a serious nature during the year under review, but considerable friction continues to exist in the Leribe District, due in a measure to Chief Jonathan's great age and inability to attend to disputes amongst his people. The territory again suffered from severe drought which occurred during the latter portion of the year. During 1926 2287 patients were treated in the hospitals, showing an increase of 66 over the numbers of the previous year. The deaths numbered 123 and the operations performed totalled 2250. In the dispensaries 61,802 patients received treatment, being an increase of 2273 over the figures of 1925. There is little noteworthy to report as regards the health of the territory; it has been very good on the whole. There were no serious outbreaks of epidemic disease. Influenza was more prevalent than in 1925 and was responsible for 985 cases, but with no deaths. There were two sporadic outbreaks, 32 cases occurring with five deaths, and five cases of cerebro-spinal fever were reported with one death. Fevers of the enteric group were few in number; only 70 were reported, and the disease was of a mild type. The majority of the patients who come to the hospitals do so for surgical aid. For medical treatment they prefer dispensary treatment, after which they return to their homes. The bulk of the dispensary patients seek treatment for gastro-intestinal, venereal, respiratory, genito-urinary, and skin diseases. The free treatment of syphilis continues, and more patients are coming every year to avail themselves of this privilege. Sanitation to any extent is only possible in the Government Reserves. Maseru is the only proclaimed sanitary area, but it is hoped to bring in Leribe during next year. Plague being endemic in the neighbouring territories, three rodent destruction gangs have been constantly employed in the Maseru, Leribe, and Mafeteng districts. Considerable progress has been made in the destruction of veldt rodents, but in the townships the position is not so satisfactory on account of most buildings not being rat-proof. Every endeavour is being made to cope with the pest.

There was an increase of 33 in the population of the Leper Asylum, which, on Dec. 31st, 1926, stood at 494. There were 42 deaths during the year; seven males and one female deserted, and four males and four females were discharged.

EXERCISES FOR THE INFANT.

ALAS for the twentieth century baby! The physio-therapeutist does not spare him even at the tender age of 5 months. It appears that in Germany and in Austria there have for some time past been enthusiasts who think that the natural instincts of infants cannot be trusted to develop their muscles adequately. It has long been thought desirable by some to teach children and young persons how to breathe, and now nature can apparently no longer be trusted to show babies how to kick and crawl and bawl. Dr. Wilkes is in the proud position of having written the first book in English on this branch of the subject,[1] and no doubt he will have pleased many mothers by giving them an increased sense of importance and by indulging their laudable desires to be of use. We do not suppose that such exercises as are here described and depicted will do a healthy child any harm as long as they are carried out with discretion and restraint, but we think that any such infant would achieve the same ends on his own initiative by measures which he would find far more congenial. The illustrations and descriptions are clear and the folder, showing 12 exercises, intended to be pinned up on the nursery wall, will no doubt be a useful guide. Nevertheless, we feel that for healthy babies in their own houses such treatment is unnecessary however much some artificial aid may be desirable fo infants confined in cribs in hospital. Yet since confine infants are presumably sick, much care and supervision i necessary even there, if harmful results are not to follow.

[1] Baby's Daily Exercises: A Manual of Exercises for Infants from Five Months to One Year of Age. By Edward Theodore Wilkes, B.S., M.D., Assistant Pediatrician, Out-patient Department, New York Nursery and Child's Hospital. New York: D. Appleton and Company. 1927. Pp. 25+x. 4s. 6d.

A NEW CHLOROFORM INHALER.

THE Chiron chloroform inhaler, which we illustrate below is designed to make it impossible for liquid chloroform t

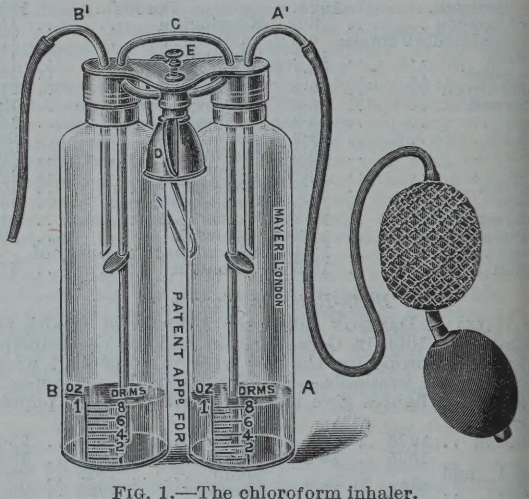


FIG. 1.—The chloroform inhaler.

be pumped to the patient, and it achieves its obje absolutely. The two means by which the accident emitting liquid chloroform has arisen are: (1) by instrumen being faultily put together, the exit tube being attached to the fitting meant for the pump, and vice versa; (2) by too much chloroform being put into the instrument. These two sources of danger cannot arise when the Chiron inhaler is used. An ingenious arrangement renders over-filling impossible, and the double bottle makes it a matter of indifference to which side the pump is attached. The apparatus is a little cumbrous to be hung from a buttonhole or used from the pocket, but a safe stand could easily be made to hold the bottles on the anæsthetist's table. We have found that the instrument can be implicitly trusted to prevent the accide against which it is designed.

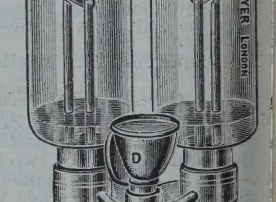


FIG. 2.—The apparatus charge in an inverted position.

The apparatus may be obtained from Messrs. Meyer a Phelps, 59-61, New Cavendish-street, W. 1.

THE HOSPITAL ALMONER'S SERVICE TO THE BLIND.

NOWHERE is the work of the hospital almoner more use than in connexion with blind and partially blind patien From the report of the work of the social service departme at Moorfields Eye Hospital we learn that the Samarit Fund is used only for urgent or exceptional cases, and th the main function of the almoner is to establish perso relations with those patients who are in difficulties, givi information, where needed, about blind societies, myo schools, convalescent homes, and so forth. To those patie who are members of societies granting "ophthalmic benefit the working of the scheme is explained and the patients a referred back to those approved societies which have agre to grant an ophthalmic surgeon's fee. In some instan the advice given is more difficult. A case is cited where young man was in the depths of despair on finding that was suffering from an incurable hereditary disease which m inevitably lead to blindness. Partly owing to the sym thetic coöperation of the almoner he seems to have discover that life is still worth living. Nor is the benefit always to t patient alone. In this case the almoner was able to coll details of the family history which were of considera interest to the surgeon.

THE LANCET

No. 5423 LONDON, SATURDAY, AUGUST 6, 1927. CCXIII.

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ON THE

COÖRDINATION OF THE RESPIRATION AND CIRCULATION TH VARIATIONS IN BODILY ACTIVITY.

elivered before the Royal College of Physicians of London

By C. G. DOUGLAS, C.M.G., *M.C.*, D.M. Oxf., F.R.S.,
FELLOW OF ST. JOHN'S COLLEGE, OXFORD.

LECTURE II.*

Delivered May 5th, 1927.

n my preceding lecture I discussed the various ors which ensure that the breathing shall keep with the requirements of the body as the meta- sm varies. The respiratory exchange of the ues cannot be adequately provided for merely by appropriate adjustment of the breathing, for igh the breathing may be responsible for efficient ous exchange in the lungs the transport of gases ween the lungs and tissues is a function of the ulation. If a person is at rest absorbing only e 240 c.cm. of oxygen per minute, it is clear that, n allowance is made for the maintenance of the y different organs, but a fraction of this oxygen rption can be attributed to the metabolism of cles which are thrown into activity when we move it. Yet the bulk of the 3 to 4 litres of oxygen h may actually be absorbed per minute by a on doing hard work must be utilised in these cles, and it would therefore seem that an oxygen- ly 30 times the resting value or even more have to be provided to meet the demands of muscles in such cases. Even if the blood can up its full charge of oxygen in the lungs the unt which can be carried in each litre of blood rely 200 c.cm., and we know that not nearly the e of this can be abstracted as the blood passes ugh the tissues. The demands made by the cles during hard work must therefore entail a great increase in both the local and the general lation.

ne problem of the general regulation of the circula- is a very much more difficult one to attack than regulation of the breathing. The system to be with is far more complex, and though a great of most valuable information has resulted from ative experiments on animals it must be acknow- d that methods of investigating functional latory changes in nearly intact animals and in , which can alone give us the complete answer we require, are still in their infancy.

discussing the coördination of the breathing with ges in the activity of the body I pointed out events in the organs whose activity varies must ne end set the pace of the respiratory centre. same line of argument ought to be applicable to egulation of the circulation. If a muscle passes rest into activity it is in the first instance the ratory demands of that muscle that have to be fied by the circulation, and somehow or other, it seems to me, the changes in that muscle initiate a series of events which will finally t in such an adjustment of the whole circulatory m that the necessary increased blood-supply is ned without detriment to the rest of the body.

Relation of Blood Flow Through the Muscles to Their Metabolism.

examining this question I intend to restrict lf to changes resulting from muscular activity, I am going to start with the proposition that the l flow through the muscles must be practically proportional to their metabolism, no matter whether they are at rest or whether they are at work so long as the work is not too severe. Apart from experimental observations in justification of this view, which I need not discuss as they have been fully dealt with by Haldane,[1] I put it forward on general grounds. It is obvious that too small a blood flow can only mean local asphyxia, and though we might for a moment think that a blood-supply in excess of the actual demands of the moment would do no harm though it might be extravagant, we can hardly maintain this when we recall the exactness with which the hydrogen-ion concentration is regulated in the body, since excessive blood flow will mean undue abstraction of CO_2 and a disturbance of local hydrogen-ion concentration. We have an analogous case in the breathing when deliberate over-ventilation of the lungs leads to a great reduction in the hydrogen-ion concentration in the arterial blood and definite signs of abnormality.

The Local Regulation of the Circulation.

Our ideas on the local regulation of the circulation have been profoundly modified in recent years by the classical work of Dale and Richards,[2] and of Krogh and his colleagues,[3] on capillary tone. The observations by Krogh on the limited number of capillaries which are patent in a resting muscle, and the astounding increase in visible capillaries through which blood is swiftly flowing as tonic contraction give place to wide dilatation on the onset of muscular work, afford an objective demonstration of the great increase of local blood-supply which, as I have already pointed out, must be secured during muscular activity. Why should the capillaries open up in this way? We know now that they are certainly not merely forced open by a rise of blood pressure in the arteries which supply them; their tonic contraction must first be inhibited, and if the blood flow is to be proportional to the requirements the degree of dilatation of the capillaries must be correlated with the change in the metabolism.

A very plausible hypothesis has been developed in recent years by Dale, Richards, and Burn[4] to account for these changes in capillary calibre on the basis of their investigation of the capillary-dilator effect caused by histamine. In their view some substance of a histamine-like nature, possibly histamine itself, may be a normal metabolic product and antagonise the constrictor effect on the capillaries which is known to be exerted by adrenalin and perhaps by pituitrin, for Krogh has shown that the normal tone of at least some of the capillaries in the body can only be maintained so long as the latter substance is present in the blood. This hypothesis is an attractive one, and affords a perfectly logical explanation of the functional alterations of capillary calibre, for it suggests that the continuous secretion of the suprarenal and pituitary glands tends to keep the capillaries constricted, and that this tendency may be overbalanced by the local production of a definite dilator substance whose amount will vary with the metabolism, a balance being struck with the capillaries dilated to a degree depending on the activity at the time. More recent researches in Dale's laboratory [5] on the presence of histamine and choline in extracts of the organs strengthen this position.

Relation of Capillary Tone in Muscles to CO_2 and O_2 Pressure.

And yet, attractive though the theory is, I am not convinced that we have got to the bottom of the story. Haldane and I, in an investigation of the regulation of the output of blood by the heart, to which I shall refer presently, thought that we had enough evidence to justify the view that the local circulation in the muscles must be dependent on both the CO_2 pressure (probably more correctly the hydrogen-ion concentration) and oxygen pressure existing at the time in the tissue, the rate of blood flow being in fact so regulated that the oxygen pressure and hydrogen-ion concentration will only

* Lecture I. appeared in THE LANCET last week.

vary to a trifling degree with increase of the metabolism unless the muscular activity is excessive. We held that capillary tone must be influenced as the metabolism varies by slight changes occurring simultaneously in the local hydrogen-ion concentration and oxygen pressure, a dilatation being provoked if the hydrogen-ion concentration begins to increase while the oxygen pressure begins to fall; it also appeared to us that the effect of moderate increase of hydrogen-ion concentration could be counteracted by a rise in the oxygen pressure and vice versa.† A muscle in maintaining steady activity for long periods must be absolutely dependent from moment to moment on the blood stream which passes through it for the requisite supply of oxygen and the efficient removal of CO_2, and this in itself might well arouse the suspicion that local circulation is in some way dependent on local gas concentrations. This view is, however, not necessarily incompatible with Dale's hypothesis, for it is conceivable that the extent to which some dilator substance can be formed in tissue metabolism may be itself dependent on the precise hydrogen-ion concentration and oxygen pressure in the tissue; the two latter factors will then be the prime cause of capillary regulation, the dilator substance the intermediary, through which they become effective. Finality has not yet been reached in our views, but I am convinced that we have substantial grounds for asserting that the calibre of the capillaries is directly influenced by chemical or physicochemical changes which result from alterations of the metabolism of the tissue in which they are situated.

Metabolism in Relation to Changes in Calibre of Arterioles.

Changes in the calibre of the capillaries would in themselves, however, be insufficient to satisfy the requirements imposed by variations of tissue activity unless accompanied by appropriate changes in arterial calibre. How precisely this is brought about is still a matter for debate. Krogh's work certainly inclines one to believe that there may be backward propagation of dilatation from the capillaries to the immediately adjacent arterioles via nerve channels, a local axon reflex being concerned rather than a true reflex. What adds to the uncertainty in the case of the arterioles is the fact that, as Krogh and Dale's observations show, the smallest arterioles may show a response to chemical stimuli resembling that of the capillaries rather than the larger arteries; it would appear, indeed, that the functional transition from arterioles to capillaries is gradual rather than sudden. It is also far from clear whether a similar backward propagation through nerve channels can explain, at least in part, the dilatation of the larger arterial branches which supply the terminal arterioles; it is, perhaps, more likely that inhibition of normal constrictor impulses to the larger vessels with resulting dilatation is part of the response in a reflex of the Lovén type to which I shall refer presently.

If arterioles as well as capillaries dilate locally in response to an increase in the metabolism of the part that they supply, the result must be a greater blood flow through the tissue. Blood will be transferred more rapidly from the arterial to the venous side of the active muscle, though this may for the moment mean some fall in arterial pressure unless this is compensated by other means, and the varying pressure exerted by the muscular contractions on the veins will assist to forward this increased flow of blood towards the heart.

Compensatory Constriction of Blood-vessels.

There is, however, a further general vascular reaction of great importance which must be taken into account. If the arterioles and capillaries dilate in, say, the great mass of muscles in the legs, t can only be adequately filled with blood if at same time there is compensatory constriction blood-vessels in the inactive parts of the body, the total volume of blood in the circulatory sys will not vary. That such a compensatory cons tion does occur is undoubted, and the visceral are blood-vessels in the abdomen offers the most fav able field for this compensation. Krogh [6] has discu in detail the possible influence of vasoconstric in this area, and has shown that diminution of cal of the arteries supplying the intestinal tract liver will be followed by the expulsion of part of reserve of blood held in the portal system ves into the vena cava, a result which will, of course much enhanced if the portal vessels themse undergo active contraction, and for this there is s evidence. Such an expulsion of blood into the v cava coupled with the increased blood flow fo up from the active muscle will result in a g acceleration of the venous return to the heart, this will be further favoured by the increased resp tory movements as hyperpnœa begins. No do other systems of blood-vessels besides those in portal area take part in the compensatory cons tion, perhaps even those in the skin in the e stages of muscular work, though, as we know experience, circulatory conditions in the skin subservient at a later stage, at least, to the requ ments of temperature regulation. Barcroft [7] recently drawn attention to the function of the sp as a reservoir from which blood may be withdr during muscular work, while Pembrey and colleagues,[8] in their observations on the behav of the kidney, appear to establish the fact that when rapid diuresis has been provoked a reduc in the activity of the organ associated with v constriction ensues during the performance of muscular work—under the stress the less impor demand has to give way before the more importan

Factors Involved in Vasoconstriction.

A widespread vasoconstriction must presum be spread through the vasoconstrictor nerves, in initiating these impulses two factors would ap to come into play. In the first place, we know the old experiments of Lovén that stimulation o afferent sensory nerve causes general reflex v constriction accompanied by vasodilatation in part of the body supplied by that nerve, and suggests that with the onset of muscular wo similar reflex excitation of the vasoconstr centre may perhaps be evoked by afferent pro ceptive impulses from the muscles themselves. Pos compensatory constriction in the important p area may be but a particular instance of a genera reflex of the Lovén type. In the second place, inc of hydrogen-ion concentration or fall in oxy pressure in the blood reaching the brain, the fo of which at least must occur during muscular w directly stimulates vasoconstriction in certain of the body. The second factor may well not into action so promptly as the first, but it s help to support the reflex effect.

DETERMINATION OF THE OUTPUT OF THE HEART.

The heart cannot put out more blood tha receives, nor can it fail to keep pace with the v return without the risks associated with back pre and venous stagnation; in short, the output o heart must be governed by the venous return. rate at which venous blood is returning to the is greatly accelerated with the onset of mus work, how will the heart deal with the task th set before it? Two methods are open to it pulse-rate may increase, a greater volume of may be expelled at each beat of the heart. Tha former of these two possible methods does act come into play is a matter of common experienc it was not until 1915 that Bainbridge [10] was a prove that the increased distension of the auricle, and possibly of the adjacent region o

† This view has quite recently received support from observations by Tinel (Comptes Rendus de la Soc. de Biol., 1927, xcvi., 665) on the diminution of calibre of the cerebral arteries when oxygen is inhaled or the breathing wilfully exaggerated as opposed to the dilatation resulting from rebreathing air, facts which he regards as indicative of self-regulation of the cerebral circulation.

at veins, resulting from rise of venous pressure and reased venous return to the heart caused reflex minution of the normal inhibitory action of the gus and to some degree an accentuation of celerator impulses to the heart by way of the npathetic nerves, a result which has since been nfirmed by Sassa and Miyazaki,[11] and by Anrep d Segall.[12] The observations by Patterson and rling[13] on the isolated heart-lung preparation have initely shown that in the absence of the normal ve-supply the heart can cope with an increased ous return by greater diastolic filling and an rease in the amount of blood expelled at each t, but these experiments do not tell us to what ree the heart does actually behave in this way in intact animal.

We can readily observe in man the increase of se-rate associated with exercise, but it does not ow that this will necessarily be accompanied by increased amplitude of beat, for what will actually pen will presumably depend on the extent to ich the Bainbridge reflex is developed in relation the increased venous return, since acceleration of heart beat without alteration of amplitude of t may suffice for the requirements. Clearly the ual state of affairs cannot be foretold; it must be ified by observation during life in the intact anism, and it is this point, the precise way in which heart deals with the increased venous return ulting from exercise, that has excited a good deal attention in recent years.

Krogh and Lindhard's observations by their nitrous de method[14] showed that the output of blood minute from the heart was comparatively small ilst the subject was at rest, values of 3 to 5 litres ng given in their original series of experiments, ugh slightly higher figures have been recorded some of Lindhard's subsequent work.[15] During scular work they found a remarkable increase of output of blood from the heart; thus in one of ogh and Lindhard's experiments the output rose m 3 litres per minute during rest to 17·6 litres en work was done involving an oxygen consumption 1570 c.cm. per minute, and in another experiment Lindhard's an output of no less than 35 litres per ute was recorded when the oxygen consumption s 3200 c.cm. per minute. So enormous a variation the output of the heart could only be met by a at increase both in pulse-rate and in amplitude of t, and this conclusion brought Krogh into opposi- n with Yandell Henderson,[16] who had been led a study of plethysmographic records of the heart animals to maintain that provided the venous ply is ample variation of the output of the heart lependent only on alterations in the pulse-rate.

Miss Christiansen, Haldane, and I[17] introduced an irely different method from that employed by ogh and Lindhard for determining the output of heart in man. We found by this method at the set that the output of blood from the heart in eral normal resting persons was of the order of litres per minute, with a correspondingly large put per beat, a value considerably higher than vious estimates. In developing the method ther, Haldane and I[18] made a number of careful ervations on myself during conditions varying m complete rest to moderately hard work. These wed that starting with an output of blood from the rt of about 7·5 litres per minute during rest the put varied roughly in proportion with the pulse- e as the metabolism rose up to a value represented the absorption of about 2 litres of oxygen per ute; the output of the heart per minute had reased to 2·5 times the resting value, while the rate oxygen consumption had risen to 8·5 times the ting value, and 64 per cent. of the oxygen available he arterial blood had disappeared by the time the ous blood entered the lungs instead of 19 per cent., value found during rest. Beyond this point we e unable to apply our method. There was no rease in the amplitude of the heart beat, the reased circulation rate being attributable merely to the rise in pulse-rate. On the other hand, we did obtain evidence, though it was less reliable, that in two subjects increase of metabolism was associated not only with a rise in pulse-rate but also with an increased amplitude of beat.

It seemed to us that there was a fallacy underlying the nitrous oxide method which was very difficult to avoid, and that though Krogh and Lindhard's observations might be right in general sense, their actual figures could not be accepted with complete confidence. So far as our own observations went an increase in the venous return to the heart might be dealt with either by an increase in the pulse-rate alone, as it was in my case, or by a combination of this with increased amplitude of beat. This difference in behaviour may perhaps depend on individual peculiarities; it may even be shown by the same individual at different times according to the circumstances of the moment, for we know that nervousness or mental excitement can cause a marked acceleration of the pulse-rate even in the resting person, and, unless there is at the same time a material alteration in the metabolism, it is difficult to believe that this is accompanied by any significant change in the output of the heart, and a diminution of the amplitude of beat in association with the increased pulse-rate seems a more reasonable assumption.

Had it been possible to apply our method for the measurement of the output of the heart during the performance of still heavier work, it is quite possible that I, too, might have shown a greater systolic discharge per beat. In extremely heavy work the output of the heart must be very greatly increased. A. V. Hill, Long, and Lupton have shown that an actual absorption of oxygen of 4 litres per minute can be attained by an athlete when breathing air, and of more than 5 litres a minute when breathing oxygen, and by a simple calculation they prove[19] that an output from the heart of not less than 30 to 40 litres per minute would be essential to convey this oxygen to the tissues which use it. With a pulse-rate of 180 per minute this would involve a systolic discharge of the order of 200 c.cm. per beat, a figure which is considerably in excess of the highest values hitherto recorded for rest. These figures for the output of the heart during severe work may seem enormous, but there is no escape from this conclusion, and it is not surprising that the aorta which has on occasions to transmit so large a volume has an internal diameter of an inch at its origin.

More recently a new method of determining the output of the heart has been suggested by Yandell Henderson and Haggard. This method depends, as does the nitrous oxide method, on the determination of the rate at which a gas which does not combine with any of the constituents of the blood is carried away in solution in the blood when a certain definite concentration of the gas in question is maintained in the alveolar air in the lungs. By the choice of ethyl iodide for this purpose it has been possible to avoid the fallacy which appears to underlie the nitrous oxide method, and one great advantage has been gained—namely, that of simplicity. During rest Henderson and Haggard find a comparatively large output from the heart per minute, just as Miss Christiansen, Haldane, and I did; indeed their figures are, on the whole, distinctly higher than ours, but they differ from Haldane and myself in their conclusions as to the results of muscular work of moderate severity. The contrast is clearly shown in Table I., where I have arranged the different experiments in the order of the recorded oxygen consumptions per minute.

It will be seen that the output of the heart increases in our experiments fairly gradually until a value of 18·7 litres per minute is reached, when the oxygen consumption has mounted to about 2 litres per minute. On the other hand, Henderson and Haggard's results show a surprisingly high figure for the output of the heart with but a moderate increase in the metabolism. Indeed, when the oxygen consumption per minute rises to about 2000 c.cm., the output of

the heart appears from their records to attain a value of 25 to 30 litres per minute, and yet in the last case shown in the table the extremely high oxygen consumption of 4600 c.cm. per minute demands no further increase in the output of the heart. The subjects marked with an asterisk in the table were all highly-trained athletes, who either rowed or played football

TABLE I.

Subject.	Douglas and Haldane.		Henderson and Haggard.	
	O_2 consumption c.cm. per minute.	Output of heart per minute in litres.	O_2 consumption c.cm. per minute.	Output of heart per minute in litres.
C. G. D. ..	630	8·8	—	—
E. F. A. ..	839	11·7	—	—
C. G. D. ..	891	10·9	—	—
*B. M. S. ..	—	—	1200	18·0
E. F. A. ..	1348	14·4	—	—
C. G. D. ..	1390	13·8	—	—
*M. C. H. ..	—	—	1495	21·9
G. H. H. ..	—	—	1503	17·0
Y. H. ..	—	—	1551	21·3
G. L. P. ..	1653	15·5	—	—
Y. H. ..	—	—	1680	22·3
Y. H. ..	—	—	1770	22·1
H. W. H. ..	—	—	1776	25·8
*F. A. G. ..	—	—	1782	28·5
H. W. H. ..	—	—	1860	24·8
C. G. D. ..	1974	18·7	—	—
*A. N. W. ..	—	—	2000	26·2
Y. H. ..	—	—	2258	32·6
Y. H. ..	—	—	2385	31·5
*H. T. K. ..	—	—	4600	30·3

Values obtained during rest for most of these subjects will be found in Table II.

* Trained athletes.

for Yale University. From some other observations made by Henderson and Haggard [21] we learn that B. M. S., who, as shown above, had an output of the heart of 18 litres per minute when doing work on the bicycle ergometer demanding an oxygen consumption of only 1200 c.cm. per minute, was capable of maintaining a rate of oxygen consumption of more than 3·5 litres per minute when working for several minutes on the rowing machine, while A. N. W., who could attain a similar figure on the rowing machine, had an output of blood from the heart of no less than 26·2 litres per minute when consuming 2000 c.cm. of oxygen per minute on the bicycle ergometer.

It is not easy to believe that when work is done of so moderate a character as that represented by an oxygen consumption of 2 litres per minute the output of the heart is really increased, as the figures seem to show, to a value which cannot be very far from the maximum of which the organ is capable; if the figures are true it would appear that little further accommodation is possible by alteration in the output of the heart to account for the high oxygen consumptions of 3 to 4 litres per minute, which we know can be kept up by athletes for considerable periods during strenuous exertion. We should have to face, too, another difficulty, for the extra oxygen would have to be obtained mainly by abstracting more oxygen from each unit of blood as it passes through the muscles, and this would be accompanied by a proportional and, as will be obvious, a very serious rise in local CO_2 pressure. I have already pointed out that there are objections to the idea that the local hydrogen-ion concentration can be considerably varied with impunity. The venous blood which enters the lungs from the right side of the heart has, it is true, a much larger oxygen deficit and CO_2 content during work than it has during rest, but this in itself is no indication that the variation represents a similar change in the gas-content of the blood traversing the muscles. The venous blood entering the lungs is a mixture of blood from different parts of the body, some more venous in character and some less. So far as can be judged from the available evidence, the blood returning from the muscles has a very low oxygen and high CO_2 content even during rest, and Haldane and I thought that the facts c be more reasonably explained by the assump that no great change occurs during work in the content of the blood leaving the active mus but that this highly venous blood returning in gr increased quantity to the right side of the h now forms a far higher proportion of the mixed ve blood entering the lungs than it did during rest.

The validity of Henderson and Haggard's me depends on the assumption that ethyl iodide solution in the blood stream in the lungs is decomp so completely in its passage through the tissues practically none returns to the lungs, and their ex mental evidence seemed to warrant this assump Yet Moore, Hamilton, and Kinsman,[22] as we Starr and Gamble [23] assert that ethyl iodide is fully decomposed in this way, but that ma amounts are to be found in the venous blood this is so, and the point ought not to be dif to settle definitely, the method as practised at pr must prove fallacious.

In any case there is, I think, another se criticism which can be brought against Hend and Haggard. An essential feature in their me is an estimation of the mean concentration of iodide in the alveolar air, and the sample of alv air which they use for this purpose is obtaine collecting the last few c.cm. of air expired in a nu of consecutive normal breaths. I pointed out i preceding lecture that Krogh and Lindhard some years ago that if alveolar samples are coll by the Haldane-Priestley method the CO_2 centrations found will be unduly high owing to the occupied in giving the forced expirations requir this method. The discrepancy may be imma during rest, but it will become significant during muscular work when the rate of blood flow th the lungs and the amount of CO_2 expelled int alveolar air are greatly increased. It seems t that this criticism must apply even with gr force to a method in which the alveolar sample taken only at the extreme end of the expira and if so, it will mean that the ethyl iodide conce tions found in the alveolar air will not repr the true mean concentration, but some value defi below this. The estimate of the blood flow th the lungs and of the output of the heart will t fore be too high. Provided that the subject is s quiet and that the depth of respiration is no shallow, I am quite prepared to believe that samples taken as Henderson and Haggard have may agree closely with those obtained by the Hal Priestley method, but I cannot help feeling during muscular work of not too great severit average of two Haldane-Priestley samples correctly at the end of inspiration and of expir will give a value which, though somewhat h in CO_2 or lower in ethyl iodide than the true me the alveolar air, will be more nearly correct than obtained by Henderson and Haggard. This may help to explain the fact that Henderson Haggard have found much higher figures fo output of blood from the heart during mod muscular work than Haldane and I did. Pe we might even trace to the same cause the cu fact shown by the ethyl iodide method tha output of the heart is, as will be seen from the fi in Table II., apparently greater when lying than when sitting or standing still. Haldane I certainly saw no indication of this in my own It may be that if the breathing slows down and de when lying down, as is often the case, the Hende Haggard samples taken at the end of expi only may again give values differing to a ma extent from the true mean. I admit that the m devised by Miss Christiansen, Haldane, and n is not free from error, but it seems to me wh review the other methods which are available a moment that it ought, on the whole, to afford r which most closely approach the truth. We have to face the criticism that the alveolar sa on which we depend for our estimate of the

centration in the arterial blood, which forms an ntial point in the argument, are somewhat too n during work, but so far as I can judge the dis- ancy during moderate work is probably not very t, though it will tend to make our calculated ies for the output of the heart a little too great he work gets harder.

There may be controversy as to the relative parts yed by variations of pulse-rate and amplitude of

TABLE II.

Subject.	Output of heart per minute in litres.		
	Lying down.	Sitting.	Standing still.
Douglas and Haldane.			
J. D.	7·5	8·0	—
Henderson and Haggard.			
N. W.	9·1	—	6·8
T. K.	14·3	—	9·8
M. S.	10·6	—	7·0
A. G.	10·7	10·0	—
C. H.	10·1	7·6	—
V. B.	9·5	9·2	5·6
H. H.	7·6	7·0	—
H.	9·5	8·3	9·7

t in the normal response of the heart during rcise, but there is no difference of opinion as to the ity of the heart to deal effectively with a great ease in the amount of blood which may reach it ough the veins and pump it on into the arteries.

Arterial Blood Pressure during Muscular Work.

When once the heart has begun to force on into the erial system the increased quantity of venous od that reaches it through the veins, the general ulation-rate will be increased and the supply of od to the active muscles with their dilated vessels be ensured. The arterial blood pressure is ermined at any moment by the output of the rt and the prevailing arterial resistance. During scular work the blood-vessels are dilated in the ve muscles and compensatory constriction of sels in the inactive parts of the body reduces the l volume of blood retained in these places and llows for the proper filling of the dilated vessels. ually the arterial blood pressure rises considerably ing muscular work as is well known, and Dr. D. Paterson and I, in following in ourselves the ages of blood pressure which take place on passing a rest into activity, have found that a systolic od pressure of 200 mm. of mercury can be quickly hed when doing work of moderate severity. The ease of arterial blood pressure will no doubt help maintain the requisite flow of blood through the ns in which compensatory constriction of blood- els has occurred. In spite of this, however, it seem from the observations of Haldane and elf, as well as those of Pembrey, that during cular activity the rate of blood flow through the tively inactive parts of the body is actually inished. This fact need not, however, conflict the postulate that the blood flow must be roximately proportional to the metabolism, for it quite likely the metabolism of the parts ted—alimentary canal, glands, &c.—may also be nished for the time being.

ull accommodation of the circulation, and of the iration too, to meet the requirements of muscular cise is by no means instantaneous. It takes time, gh not very long, for a balance to be struck even e work done is but moderate, and stimulation he nervous centres involved in the adjustment h may be attributed to psychic effects connected the transition from rest to work appears some- s to accelerate the early stages. When once the stment is established, however, it will persist so as the muscular work remains steady. When the stops we may anticipate a reverse series of changes to that which occurs on the commencement of exercise. With the reduction in the metabolism the capillaries in the muscles will diminish in calibre, the previous compensatory constriction of blood-vessels elsewhere in the body will give place to dilatation, the venous return to the heart will be slowed down, and with the diminution of the stimulation responsible for the Bainbridge reflex the pulse-rate will decrease, the output of the heart will become smaller, and the arterial blood pressure will fall. Observations by Lindhard [24] and by Lythgoe and Pereira [25] point to a rapid diminution of the general circulation-rate when muscular exercise stops. It is possible that as the stimulus which evoked the accelerator reflex diminishes in the earlier stages of rest, the antagonistic depressor reflex which depends on the passage of afferent impulses up to the branches of the vagus connected with the left ventricle and aorta [26] may come into play and help to hasten the return of the pulse-rate and arterial blood pressure to normal values.

As in the case of the regulation of the breathing coördination of the circulation with increase in muscular activity seems to be attained by the coöperation of chemical and nervous factors. In the chemical changes resulting directly from alteration in the metabolism and in reflexes, whether peripheral or central, initiated by stimuli originating in the active muscles we can, I believe, find the cause not only of local vascular dilatation but also of compensatory vasoconstriction. The heart responds automatically to the resultant increased venous return owing to the accelerator reflex to which it is subject and to its own potential capacity for increasing its amplitude of beat. The correct adjustment of the whole circulation is, in fact, set by those peripheral organs whose activity happens to change, but in obtaining their own appropriate supply of blood the rest of the body does not suffer.

This sketch which I have attempted to draw of the factors concerned in the regulation of the circulation is but rough and incomplete. Far more information must, I fear, be obtained before we can hope to appreciate in full the delicacy and subtlety of adjustment of blood flow to meet the ever-changing variations in activity of the muscles, organs, and glands, indeed of every part of the body, which occur in normal everyday life, but until we can do this we cannot claim to understand properly the circulation of the blood.

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THE PREPARATION OF PATIENTS FOR OPERATION.

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WITH the passage of time and the accumulation of experience the methods adopted in preparing patients for the ordeal of a surgical operation have undergone radical alteration. Advances in surgical technique and greater accuracy of diagnosis have gone hand in hand with a crystallisation of ideas on the most satisfactory preoperative preparation of the patient.

Objections to the Use of Castor Oil.

Formerly purgation and starvation, both as complete as possible, were the order of the day, the paramount consideration in the mind of the surgeon being the emptiness of the whole alimentary tract. The usual purgative was castor oil in full dose, and this drug succeeded in irritating the intestine to such an extent that the bowels acted frequently and forcibly. Oil was given the night before the day of operation, and the patient's rest and sleep were disturbed by numerous and insistent calls to stool.

The mode of action of castor oil in the intestine is well known. It acts as a purgative in virtue of its transformation in the duodenum into ricinoleic acid. This substance is a strong intestinal irritant and very effectively stimulates peristalsis in the gut as it passes through it. The object aimed at in giving the drug—namely, the complete evacuation of the bowel—is attained with more certainty with castor oil than with any other of the common purgatives; but the advantages and disadvantages of such treatment demand careful consideration. The advantages of drastic purging of the intestinal tract are few in number, and are confined to cases where it is desirable to empty the colon completely and to avoid a movement of the bowels for as long as possible. Such cases are those requiring operation on the anus and anal canal, and especially those for the cure of hæmorrhoids. In these special circumstances castor oil empties the intestine admirably, and the constipation, which is its well-known sequel, effectively guards against bowel movement for several days.

The first disadvantage of castor oil in the preparation of a patient for operation is its strongly irritant nature. The ricinoleic acid stings the intestinal mucosa and musculature so venomously that the gut is irritated, reddened, swollen, and exhausted by the insult. The intestine is empty and collapsed after such treatment, but it is not in the best condition to withstand the mechanical interference of the surgeon. Such irritation leaves it in a condition most unsuitable for intestinal surgery.

The second disadvantage is the most serious; it is the inertia of the intestinal musculature which follows the irritation and overaction caused by the oil. This inertia is, I believe, one of the most fruitful sources of ileus after abdominal operations. The simplest laparotomy, however clean the incision and however gentle the manipulations, must result in some disturbance of the normal peristalsis in the intestine. Two factors are concerned in producing this disturbance; one, the mechanical interference with the gut itself by handling, incising, suturing, "packing-off," &c.; the other, the immobility of the abdominal wall which follows the closing of the incision. This immobility is a result of nature's protective reflex, which keeps all the muscles on guard against the smallest movement, and also of the firm bandaging of the whole abdomen. If to these two factors tending to inhibit normal peristalsis and avoidable in any laparotomy be added the intestinal inertia consequent on the administration of castor oil, then the risk of abdominal distension after the operation is very materially increased. It wil conceded generally that tympanites is probably most frequent cause of discomfort after laparotc and while it is usually transient and may give to but little discomfort, yet it sometimes jeopard the patient's chances of recovery. Any metho avoiding this common and distressing postopera complication is greatly to be desired, and the step towards such a method is the avoidance of severe intestinal irritation produced by castor oi

The last disadvantage of castor oil—and thi especially great if it be given the night before op tion—is its interference with the patient's rest. ensuring of sleep and rest as undisturbed as pos is recognised to be one of the best prophyla against shock. Where is the surgeon who has remarked the great power of resistance to sh displayed by the phlegmatic type of patient wh less excited about his operation than the surgeon performs it? Such a subject will come through ordeal with little lowering of his blood press compared with that which might occur in a ner patient in the same circumstances. It is sure matter of common observation that the reserv "vital force" is built up by refreshing sleep b than by any other single agency. I submit that disturbance of sleep incidental to the use of l doses of castor oil on the night before operation menace to the patient's powers of resistance and o to be avoided.

Not content with the violent purgation proc with this drug, many surgeons demand further their patients be given an enema on the oper morning. The object of this, apparently, is to er the large intestine, and to avoid the possibilit the castor oil continuing to force the bowels t right up to the hour of operation, and perhaps o operating table. To some patients the giving c enema is in itself a weakening measure, and it least advisable to avoid anything which may tend to deplete a patient's strength on the mo of the operation day. It must have been experience of some that a nurse has wakened a pa from sleep in the very early hours of the mornir administer an enema, and that to one who has disturbed most of the night, and sadly needs sleep that may be secured in the intervals of co cramps. Surely the night preceding operation ca relieved of such terrors as these.

It may be said in extenuation of the castc purge that for intestinal anastomosis it is nece to have the bowel empty, and therefore that c oil supplies an important need. In answer to a statement I would say that:—

(*a*) Emptiness of the gut is not a necessary con for satisfactory intestinal anastomosis; the resourc surgery are surely sufficient to guard against the esca intestinal contents when a part of the bowel is incised

(*b*) The collapsed and contracted state of the bowel r anastomosis more difficult than it need be, and end-t anastomosis may be made very difficult by such a st the intestine.

(*c*) The anastomosis of loops of bowel irritated contracted, besides being difficult at the time, is liable to be followed by stenosis of the aperture than such anastomosis in normal bowel.

(*d*) The inertia of the gut following the hyperac caused by the oil is a menace to the functioning c stoma.

The disadvantages of such purgation in i abdominal operations have no counterbala advantages, and this preparative treatment is very generally supplanted by one more hu and enlightened.

Objection to Preoperative Starvation.

With reference to starvation before abdo operations, that too is becoming a relic of the p at any rate in the degree to which it was for practised. The withholding of food for 12 t hours, and the giving of nothing but water, v rigorous régime and one which now has litt be said in its favour. The old idea of admitti

ds into the alimentary tract within half a day of operation, and the removal of all intestinal tents already there, apparently was designed not y to produce the best possible condition of the ient and his viscera for surgical interference, but) to guard against postoperative distension. In s latter object it usually failed as signally as it in the former, chiefly, as has been said above, on ount of the constipating effect of castor oil; but) because of the absence of the normal stimulus to istalsis—namely, the intestinal contents.

The strongest argument against the preoperative rvation of a patient is the fact that such with-ding of food predisposes to acidosis, or the ering of the alkali reserve in the blood. This uel is the more liable to follow in children, ticularly in those cases where a septic process is work, and when chloroform or ether, but especially former, is used as the anæsthetic. It is said that n the mild attacks of vomiting that occur after st laparotomies are due to a slight degree of losis. It is my belief that this vomiting is entuated, not relieved, by preliminary starvation too long a time.

Modern Preoperative Methods.

Having criticised the older methods of preparation, wish now to outline the means that are being pted more and more in the routine preparation of ients for laparotomy, and to refer incidentally a few of the special methods required in some cial cases.

The examination of the cardiovascular system, lungs, the nervous system, the urine, and the mation of the efficiency of the renal function, can lly be termed preparation for operation. They to be regarded more properly as part of the tine examination from whose data, together with record of his history, the diagnosis of the patient's plaint has been made. For this reason it has n assumed here that these investigations have n carried out in the complete examination of the ent before operation is contemplated.

reoperative measures may vary somewhat to t the needs of certain special organs, such as liver or kidney, when these are diseased, or to viate certain troubles due to obstruction in the ientary tract. For the majority of abdominal rations, however, and for all operations on other s of the body, when general anæsthesia is used, following scheme of preparation is advocated.

The removal of any sources of focal infection—e.g., ic teeth, tonsils, &c.

The ensuring of a free daily evacuation of the bowels n adequate dose of paraffinum liq. night and morning.

A course of tonic treatment with fresh air, exercise r as possible, and suitable food. These three desiderata have been achieved in some cases by treatment rgone before the operation in view was recommended; ther cases a period of one week is usually sufficient to v these procedures to be carried out.

Admission to the nursing home or hospital ought to be ater than 6 P.M. on the day before operation.

The patient then has a warm bath and goes to bed.

The anæsthetist and the surgeon visit the patient in oom, and sees that the nurse understands the technique reparation for the operation next morning.

The patient's supper consists of a light meal such as , boiled fish or chicken, with plain sauce, spinach, er, toast and plain biscuit, jelly. No potatoes, fresh d, cheese, strong tea, or coffee. Unrestricted fluids to s. Alcohol only if specially ordered by surgeon.

The skin of the whole anterior abdominal wall and as to be shaved, washed with ether, and covered with rile towel.

Later in the evening when the patient is feeling sleepy given a hot drink of ovaltine, or Horlick's malted milk.

. A mild laxative such as that to which the patient is accustomed—e.g., paraffinum liq., senna, liquorice—ministered in the dose which he knows to be effective r normal circumstances.

. Teeth are scrubbed thoroughly with a new tooth-h and an antiseptic tooth-paste—e.g., euthymol.

. Lights out 10.30 P.M. or at discretion of nurse.

. Night nurse ensures a good night's rest. Gives hot s, &c., but after 2 A.M. only water or sweetened lemonade.

14. Sleep on no account to be disturbed till 7 o'clock next morning.

15. Patient is given a glass of hot water to drink on waking.

16. Teeth are scrubbed as before. Toilet completed, (including shave).

17. Enema is administered only if no result from laxative by 7.30 A.M.

18. 8.30 A.M., hypodermic injection, atropine gr. 1/100, morphine gr. 1/6.

19. Bladder emptied. If not, note is sent with patient to theatre with time of last micturition indicated.

20. Operation 9 A.M.

It will be seen that the above scheme aims at presenting the patient to the surgeon on the operating table with his mind well rested by refreshing sleep, and his nervous energy conserved by the absence of excitement and long suspense before the early morning operation. His tissues are not desiccated by excessive excretion of fluids, the result of perspiration, increased frequency of micturition, and even diarrhœa which often follow nervous excitement. The patient comes to operation with his tissues adequately supplied with water, his food reserves in their usual state, his metabolism adjusted as perfectly as may be, and his intestines working normally—in short, in such a condition of fitness that the shock of operation may affect him as little as possible.

Risks of Focal Sepsis.

The attention to septic foci in the mouth and nose cannot be too meticulous, and it is nothing less than a surgical crime to perform an operation (other than an emergency one) with general anæsthesia in the presence of frank oral or nasal sepsis. This is said on account of the risk of pneumonia supervening in such cases. When dealing with what Mr. A. J. Walton has named the "surgical dyspepsias," the medical attendant doubtless will have eliminated any focus of infection that he may have been able to discover; on the other hand, he may not have thought it worth while to treat dental sepsis in a patient awaiting such an operation as that for the radical cure of hernia. It is, however, to be insisted on that the risk from the anæsthetic is materially increased when it is administered through a cavity in which virulent pathogenic organisms abound.

Special Precautions.

Before laparotomies, in the course of which it is expected to open the stomach or small intestine, some surgeons give only sterilised milk and water for one or two days before the operation. This would appear to be unnecessarily fastidious, because the chyme in the duodenum and upper jejunum is to be regarded as sterile under ordinary conditions, and the stomach contents, if any, are practically so after the routine treatment described above.

In cases of pyloric stenosis the stomach may empty so incompletely that a mass of decomposing foodstuffs is left in it even after the consumption of soft foods only. In such a case it is wise to wash the stomach out the night before operation, and afterwards to give fluids only in small quantities.

Before operations on the biliary apparatus, the preparation of the patient demands peculiar attention, and the nature of the preoperative treatment varies with the presence or absence of jaundice. It is wise to preface all operations on the biliary tract with the administration of hexamine, gr. 10, t.d.s., for a week at least. The object of this is to disinfect the bile passages. In the presence of jaundice two risks must be guarded against before operation is undertaken. One is hæmorrhage on account of the lengthened coagulation time of the blood in these patients, the other is the relative hepatic insufficiency likely to have been produced by biliary obstruction. The risk of hæmorrhage should be anticipated by the intravenous injection of calcium chloride, 5 c.cm. of 10 per cent. solution, once daily for three days, taking great care that the whole of the solution is delivered within the vein and that none escapes into the subcutaneous tissue. Hepatic insufficiency is guarded against by the administration of glucose to restore

the glycogen reserve, to combat the tendency to acidosis, and to spare the liver the strain of dealing with large quantities of amino acids. Glucose is most easily administered per rectum, 10 drachms glucose and 1 drachm bicarbonate of soda in a pint of water.

Where chronic obstruction is present in the colon, this may be relieved by preoperative preparation with enemas and the feeding of suitable food to the patient. Such intelligent treatment is likely, if successful, to remove much of the risk of operation for the permanent relief of colonic obstruction. When unsuccessful, these measures must be supplemented by a preliminary operation to relieve the obstruction before anything further is attempted in these cases.

The preparation of patients for operation upon the genito-urinary system demands special consideration, and cannot be discussed within the compass of this article.

In surgical emergencies the urgency of the patient's condition is such that any prolonged preparation before operation is out of the question. There are, however, one or two points in the preoperative treatment of acute cases which are calculated to increase the chances of success. The onset of an abdominal catastrophe, such as the perforation of a viscus or acute pancreatitis, gives rise to immediate shock and prostration, so great that the patient is a bad "operation risk" during the first hour or so after the event. Such a patient is best treated by a full dose of morphia after the diagnosis has been made, and by being kept warm in bed between blankets with hot-water bottles. The initial severe shock passes off in an hour or so under such treatment, and the patient is left in a condition better adapted to withstand the further shock of operation.

In acute appendicitis, especially in children, the hour or two that may have to elapse before operation is most usefully spent in the administration of glucose per rectum. This is a precautionary measure against delayed anæsthetic poisoning in these cases susceptible to this dire event. Acidosis is already present in a large proportion of them; for they have eaten nothing for some time before operation, and an acute septic process is at work. The number of cases of acute appendicitis in children showing a positive Rothera's test for acetone bodies in the urine must be a large proportion of the total. The writer knows of no statistics in support of this statement; but his experience is that the test is positive in the majority of such cases.

The washing out of the stomach in cases of acute intestinal obstruction is a preoperative measure which is time-honoured. Its efficacy, however, is doubtful, because the stomach usually refills with the dark regurgitating fluid as quickly as it can be emptied. For this reason stomach lavage has not established its place in preoperative preparation of patients in, or approaching, the stage of fæculent vomiting from intestinal obstruction. In such cases the use of spinal or regional anæsthesia seems to hold out better hope of success than does general anæsthesia with its attendant risks of vomiting and aspiration of foul liquid into the lungs.

The smooth convalescence of many patients after emergency operations before which routine purging and starvation were impossible to carry out first attracted the writer's attention to the subject of this article. Doubt as to the wisdom of the old methods of preparation was aroused by noting the frequent occurrence of tympanites after simple laparotomies. The scheme outlined in this paper was evolved to effect the changes which were considered desirable.

It must be admitted that the majority of patients undergoing operations with general anæsthesia convalesce well whatever their preoperative preparation. It cannot be gainsaid, however, that careful attention to the simple points mentioned in the scheme above has the most soothing and beneficial effect, and that patients recuperate the better for it.

This good effect, moreover, is so great as to be well worth the trouble and care taken in inducing it. It is in cases where the peritoneal cavit opened that the benefits of such careful prepara are most manifest; the advantages are but less remarkable in cases where the operation i other parts of the body.

THE RELATION OF FUNICULITIS TO HYDROCE IN EGYPT.

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CELLULITIS of the spermatic cord has long recognised as a fairly common affection in the In Egypt F. C. Madden [1] drew attention to the dition in 1907. In Ceylon, where it had for been known, A. Castellani [2] began to invest it in 1904. In 1908 he described it more fully, g it the name of endemic funiculitis.[3] In 1909 I Coutts,[4] at Kasr-el-Ainy Hospital, made a com study of the condition, and published clinical bacteriological particulars about it.

Incidence.

During the four years 1921–24, 105 cases admitted to Kasr-el-Ainy Hospital for this comp and about double this number were treated as patients. These figures, however, represent the s or moderately severe cases which form a very percentage of the total incidence of the disease. commonest form is so mild, causes so little i venience, and is of so short a duration, that th hospital class of patient does not usually seek a for it. In the better-class patients seen in pr practice one meets with two or more cases for one case seen in hospital.

It occurs more often in April, May, and June, th it is present all the year round. It is a disea young men of 15 to 30 years. I have seen it in a man of 60, but never in a child. It is us unilateral, but may affect both sides, either simul ously or separately; and the attacks are us repeated at variable intervals.

Ætiology.

Castellani believes the condition to be a fi disease with a superadded streptococcal infe He found in the blood of several cases a filaria si to, but, in his opinion, distinct from, *Filaria ban* Coutts succeeded in growing a Gram-positive streptococcus from the inflamed cord as well as granular patches in the urethra. But alth the short streptococci can be demonstrated by and culture in most cases of this disease, filar blood films taken at night or in day-time can be found. As a routine, the examination of blo filariæ was not done on cases of funiculitis adm to Kasr-el-Ainy Hospital, but in the last 12 examined filariæ were found in two only.

Varieties.

For practical purposes three varieties of the d may be described: (1) gangrenous, (2) suppurativ (3) non-suppurative. The non-suppurative variet further be subdivided into a severe and a mild The suppurative variety is decidedly less co than the non-suppurative. It is interesting to however, that, whereas only 3 of 84 cases se me in private practice were of the suppurative va yet 70 per cent. of the cases admitted to Kasr-el Hospital were of that variety. The non-suppu variety does not cause enough general and symptoms to drive the lower-class patient to ho

(1) In the *gangrenous type* the inflammation severe that all the vessels of the cord become t

[1] THE LANCET, 1907, i., 505.
[2] Manual of Tropical Medicine, second edition.
[3] THE LANCET, 1908, ii., 15. [4] Ibid., 1909, i., 227.

osed, the blood-supply is cut off, and the testicle nd a long piece of the cord become gangrenous. he onset is sudden and the patient becomes quickly nd profoundly septicæmic and dies in two or three ays, even in spite of early interference. Luckily nough it is the rarest of all forms.

2. *Acute suppurative funiculitis* usually starts ıddenly with rigors, vomiting, and fever. Conɔmitantly the spermatic cord becomes painful, ɔnder, and greatly swollen, and rapildy goes on to ıppuration, which, in the severer type of case, may ɔread to the pelvic and retroperitoneal cellular ssues. The testicle is usually only slightly enlarged ıough extremely tender, and, as a rule, there is ;tle or no effusion in the tunica vaginalis at this age of the disease. As the case advances the general ɔndition goes from bad to worse; the tongue is ırred and dry and the patient looks profoundly ɔptic. There is no tendency to spontaneous recovery ıd, if operative interference is delayed, or sometmes in spite of operation, septicæmia or septicoɔæmia sets in. Abscesses may form all over the body, ıe pyæmia selecting especially the knee-joint. In ɔery case the same diplo-streptococcus could be ɔmonstrated.

The structures of the cord are covered and matted gether with lymph exudate and bathed in pus. ıe blood-vessels are clogged with septic thrombi. ıe vas deferens is actually inflamed and pus can ɔ squeezed out of its lumen. Microscopically the cture is one of acute inflammation with, however, marked increase of the eosinophile element in the llular infiltration. Cultures from the exudate in e tunica vaginalis are always negative, but from e cord itself the diplococcus can always be grown.

The following is a typical leucocyte count of one these cases: total, 19,750; polymorphs, 62 per nt.; lymphocytes, 18 per cent.; eosinophiles, per cent.

3. *Acute Non-suppurative Funiculitis.*—This is the ost common variety of the disease; it has long en recognised in Egypt, being usually described as rombosis of the spermatic cord. Only comparaɔely recently has it been recognised as a variety of demic funiculitis. Though the onset is as sudden in the suppurative variety, constitutional symptoms not usually amount to more than a slight degree fever. There is a dragging pain in the groin and moderately hard and tender swelling on the affected le. The structures of the cord are matted together. ıe veins can be felt thrombosed and the corresponding ididymis is slightly tender. But neither the general r local condition is, as a rule, severe enough to ıd the patient to bed or keep him from his daily ɔrk. Pain and swelling may be so insignificant often to pass unnoticed by any but an observant hypochondriac patient. The condition is not ɔgressive. Slow absorption begins at about the end the first week, so that by the end of the second or ird week the infiltration has nearly cleared up, ɔving the cord only slightly more fibrous than fore. The severer type of this variety of the ɛase is rarely met with. In it both general and ıl symptoms are greatly exaggerated, and, though the cord itself actual suppuration is not detected, ıæmic symptoms may supervene, and the same ganisms can then be found in a pyæmic joint or scess elsewhere.

Pathology.

Investigation of this non-suppurative funiculitis is ıde difficult by the fact that the disease is not fatal d operative interference is not indicated, so that ither a post-mortem nor an ante-mortem examinaɔn of sections or specimens is easy. But I was lucky ɔugh to get the consent of 12 patients for an explorayy operation; and, in some cases, actually did a rtial excision of the cord (minus the vas) for pathoɔical examination in the different stages of the ɛase. Macroscopically, the cord looks fibrous and ɔ structures are matted together and cut like cheese. rombosis is present in all or most of the vessels, d from some of the veins a bead of pus can sometimes be expressed, though there are no localised abscesses in the cord. In fact, the histology of this condition resembles that of the suppurative variety (acute inflammation with marked eosinophile infiltration, &c.), except that suppuration is not present. It is noteworthy that in cases where pus was actually demonstrated inside the veins healing took place by first intention. In this variety culture from the cord sometimes fails.

Of the 12 cases, 4 were examined at the end of the first week, 4 at the end of the second, and 4 at the end of the third.

First week.—The microscopical picture is typical of phlebitis and periphlebitis together with lymphangitis and cellular infiltration of the cellular tissue in which the eosinophiles predominated.

Second week.—Clot that filled up the vein shows signs of the disintegration and organisation and the formation of fibrocellular tissue in other parts of the cord.

Third week.—Some veins are obliterated; others have thickened fibrosed walls and patient lumen simulating arteries to the naked eye. The rest of the cord (excluding the arteries and vas) is transformed into fibrous tissue in which no lymphatics can be detected.

There is no marked leucocytosis, but the relative number of eosinophile cells in the blood ranges between 6 and 20 per cent. Examination of the cord after one or more of these attacks reveals sclerosis, fibrous tissue predominating round and between the constitutents of the cord as well as in the adventitia of the veins. The walls of the latter look, to the naked eye, like thick arterial walls, and the lumen in some of them is found obliterated.

Sequelæ.

The above is the clinical and pathological picture of endemic funiculitis as seen in Egypt. But what is the further history of the cases? I was fortunate enough to discover it in some of my patients seven years ago, and since then have tried to follow up all such cases. I have repeatedly found that, either during an attack, towards its end, as absorption is taking place, or sometimes even after all signs and symptoms of funiculitis have cleared up, a hydrocele of the tunica vaginalis gradually formed on the affected side. A single attack of mild funiculitis may not result in a hydrocele, but further attacks always produce hydrocele, or enlarge a pre-existing one. Such hydroceles persist and usually go on enlarging after the attacks and are not to be compared with the type of inflammatory and temporary hydrocele met with, for instance, in gonorrhœal epididymitis, which tends to become absorbed as the inflammation subsides.

I now look upon funiculitis as the main, if not the only, cause of the hydroceles so prevalent in Egypt, and up to now labelled idiopathic. In four years 424 cases of hydrocele were admitted to Kasr-el-Ainy Hospital for treatment and more than 730 were tapped in the out-patient department. Of these a negligible percentage were secondary to orchitis, whether traumatic, syphilitic, gonorrhœal, or otherwise; but the huge majority were of the so-called idiopathic variety. Loosely fitting clothes, donkey-riding, relaxation of the scrotum from heat, and excessive coitus are among the factors which have from time to time been suggested as causes of hydrocele in Egypt. Yet hydrocele is as common in the trousered effendi as in the wide-robed sheikh, in the town-dweller as in the rural fellah, and in the Upper as in the Lower Egyptian. And it will be found that all such theories fall to the ground on investigating the histories and habits of any large number of cases. In thousands of cases of hydrocele all investigators have failed to find filariæ in the night blood; but it must be remembered that the same negative results have been obtained in elephantiasis during any but the acute stages of the disease.

In my opinion it is quite justifiable to consider the effusion in the tunica vaginalis as the results of the permanent obstruction of the testicular lymphatic drainage produced by one or more attacks of funiculitis in the same way as elephantiasis is the result of the

repeated attacks of lymphangitis that occur in filariasis. The fibrous thickening of the spermatic cord so constantly seen when operating on hydroceles and which has always been considered to be due to the dragging weight of the hydrocele is, in my opinion, nothing but the permanent effect of a previous attack (or attacks) of funiculitis. I have examined sections through the spermatic cords of three or four cases of hydrocele taken at random, and have found in each of them the same increase of fibrous tissue and the same thickening of the adventitia of the veins as is found in the non-suppurative cases of funiculitis after the acute symptoms have subsided (vide supra).

Conclusions.

(1) Hydrocele is common in countries where funiculitis is prevalent. (2) Funiculitis exists in Egypt to a much greater extent than one is led to believe by analysing the admissions to a free hospital. (3) It occurs in two forms—a severe form ending in suppuration and a milder form ending in absorption. (4) There is a great similarity between funiculitis and the attacks of lymphangitis met with in tropical elephantiasis, the underlying cause being probably a filaria, and the exciting cause a form of streptococcus. (5) The lymphatic and venous obstruction resulting from these attacks results in the formation of the so-called idiopathic hydrocele, which therefore corresponds to the subcutaneous lymphatic œdema in elephantiasis.

TWO CASES OF DIABETIC GANGRENE TREATED BY CONSERVATIVE SURGICAL MEASURES.

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UNTIL quite recently the operation of high amputation has been the treatment almost universally employed for diabetic gangrene. There is no doubt that a large number of successes have followed when this has been done, the patient subsequently remaining free from a recurrence for some considerable time. There is a distinct clinical type of the disease, the so-called "fulminating type," in which the spread of the gangrene is so rapid that operative measures cannot be undertaken, or in which, if high amputation is attempted, gangrene invariably and rapidly develops in the stump. Excluding altogether these comparatively few fulminating cases, there is no doubt that the number of recurrences after high amputation is at the present time much larger than it should be. The reason for this is not far to seek. It is largely due to prevarication with unnecessary delay before operative measures are adopted, when the time factor is one of extreme importance. The patient (and sometimes the surgeon) is reluctant to sacrifice such a large portion of the limb; and will temporise in the hope that an operation will prove unnecessary.

The use of insulin as a preoperative measure has done much to increase this delay; for with its use the progress of the gangrene may be checked for a time, thus too often leading to a sense of false security. A moment's consideration as to the underlying pathology of the disease—that it is a malnutrition phenomenon due essentially to changes in the blood-vessel walls of a permanent nature—must lead to the realisation that whatever the action of the insulin is, it is only a transient one, and cannot materially affect the course of the gangrene. Sooner or later the gangrene will recommence to spread, and the insulin will then cease to exert its usual beneficial effect. The amelioration of the local condition is of a temporary nature only, and does not warrant delay in amputation. Insulin, however, has its place in the operative treatment of diabetic gangrene. Used as a preoperative measure by rendering the patient sugar-free, or temporarily reducing his blood-sugar, it places him in a better position to withstand t anæsthetic and the operation itself.

Repeated trials have proved conclusively that l amputation by itself in the majority of cases will n prevent the spread of the gangrene. Recently at meeting of the Royal Society of Medicine so successes were reported following more conservati treatment in cases of senile gangrene and Raynau disease. The two most successful measures used we the operations of (1) periarterial sympathectom (2) ligature of the femoral vein. Profiting by t experience of others, and hoping to improve on th methods, in the two cases about to be described, combination of these two operations was used, a found to be of advantage. The reasons for using th combined operation will be discussed later. A br outline of the chief points in the history and treatme of the two cases is as follows.

Clinical Records.

L. M., aged 63 years; married, three children. Admitt to hospital on Dec. 12th, 1926, with a 12 years' history diabetes mellitus. She had had operations performed both eyes for cataract some years previously, and also g a history of numerous carbuncles. The patient was fou to be a well covered and robust individual. On the ri foot there was a patch of moist gangrene involving the fi second, and third toes, and extending well on to the ball the great toe, with surrounding œdema of the foot. T dorsalis pedis, plantar, and popliteal pulses were not palpa on the right leg, but were just palpable on the l Temperature 100°, pulse 100, respirations 20, urine spec gravity 1010, sugar 2·30 per cent., albumin a trace.

Treatment.—On the day of admission insulin, units three times a day, was given, and the urine became sugar-f almost immediately, remaining so throughout her stay hospital. Subsequently the dose of insulin was reduced f to 10, and later to 5 units per diem. She was kept o moderately strict diabetic diet. The foot was pla uncovered in a radiant heat bath. It smelt badly, and fr time to time exuded a small amount of foul sero-sanguine fluid. Two days after admission, as the gangrene and œdema were extending, an operation was performed.

Operation.—Under gas and oxygen an incision ab four inches long was made in the thigh. The femoral ves were exposed in Hunter's canal, and a periarterial sym thectomy performed. For a distance of two inches adventitia was stripped off the vessel, two minute muscu twigs being at the same time ligatured. No obvious pa or change in the vessel wall was noticed after removing adventitia (as reported by previous observers). The arte wall was found to be thickened, hard, and calcareous. femoral vein was then ligatured in two places and the wo closed.

At the end of the operation the leg was returned to radiant heat bath. On the next day—namely, Dec. 15t a remarkable change was noticed in the limb. The dors pedis, plantar, and popliteal pulses were not now palpable, but of distinctly greater volume than those of other limb. This increase in pulse volume has persis but in a much less marked degree, right up to the present ti Two days after the operation a line of demarcation was s at the edge of the gangrenous part. The area of gangr had not extended since the operation. On the third day œdema of the foot was less marked, and two weeks l had almost completely disappeared. Five weeks after operation the gangrenous area was quite dry and mummif and almost completely separated from the rest of the f being held to it by a few connective tissue fibres o The œdema had entirely disappeared. The temperature 98·6, pulse 72, and the respirations 20. The urine was su free with 5 units insulin daily. No pain was felt in diseased limb. The gangrenous part has since comple separated, and the patient is now up and about wearin surgical boot.

The second case is very similar to the first one.

CASE 2.—S. H., a baker, aged 59 years, had been tre for some years for diabetes, latterly with insulin on which had remained sugar-free for nearly a year. For some y he had had a painful corn on the ball of the second to the left foot. Three days before admission he noticed t the toe was discoloured and painful. At first he took li notice of it, but two days later the condition became m worse, and he presented himself at the hospital.

On admission (Jan. 30th, 1927): temperature 100·6°, pulse 100, respirations 20. There was well-marked m gangrene of the second, third, and fourth toes of the left f extending up on the dorsum of the foot for a distanc about half an inch, with an area of surrounding œd extending nearly to the ankle-joint. The heart, chest,

bdomen on examination were normal, urine specific gravity 005, reaction acid, sugar, albumin a trace.

Treatment.—The foot was at once placed in a radiant heat ath, and insulin, units 20, was given. The subsequent linical history of the case is very similar to that of the receding one. On the day following admission an operation as performed on the left foot; the artery and vein were xposed by a longitudinal incision over Hunter's canal. periarterial sympathectomy was performed with ligature f the femoral vein. Following the operation the dorsalis edis, plantar, and popliteal pulses were all temporarily xaggerated in volume on the side operated upon, and line of demarcation rapidly formed at the edge of the angrenous area.

On the tenth day after operation, at the man's own equest, in order that he could carry on with his business as oon as possible, an attempt was made to shorten the period f his stay in hospital. A Syme's amputation was performed. he wound healed by first intention, and the patient was ischarged with a very good, clean, and serviceable stump 4 days later. The urine remained sugar-free with 10 units f insulin daily.

Discussion.

There is good reason to believe that this combined peration of ligature of the femoral vein with sympa- nectomy of the artery is an improvement on either f these measures used by itself. One has only to xamine the hard, "gritty," calcareous walls of the lood-vessels in a case of diabetes of some years' uration to realise that, even when denuded of all aso-constrictor fibres, the power of dilatation of the essel distal to the site of operation must of necessity e impaired, owing to the mechanical obstacle caused y the degeneration of muscular tissues. Vaso- ilatation does occur after this operation—of that here is not the least doubt—and a form of active ongestion of the limb is thus produced. It is to this ctive congestion that the good effects of the treatment e attributed. Ligature of the vein produces a milar hyperæmia by passive congestion. When these two methods of active and passive congestion of the limb are combined a summation effect is produced.

The increased vascularity of the periphery of the limb following this operation is seen by the increased volume of the plantar, dorsalis pedis, and popliteal pulses, and the line of demarcation which rapidly forms at the advancing edge of the moist gangrenous patch. This vascularisation of the part should go far in making possible more conservative treatment in the form of low amputations. Low amputations would seem to be preferable to non-operative measures, such as allowing the part slowly to slough off—because of the increased strain thrown upon the subject by the suppuration (lowering both the local and general resistance to the disease). Larger doses of insulin will be required to keep him sugar-free, and they may fail to control the sugar output altogether. Also from economic reasons the time factor is, in some cases, a not inconsiderable one, and convalescence is very much shortened by amputation.

Conclusion.

The method adopted in the treatment of diabetic gangrene as illustrated by two cases was briefly as follows: 1. A very short preliminary course of insulin with radiant heat was given, in order to render the patient more fit for the operation to follow. This was followed by (2) early operation. The operation of choice was a combined method of peri-arterial sympathectomy of the femoral artery in Hunter's canal, with ligature of the femoral vein. This was thought to be preferable to either operation by itself, as the amount of hyperæmia produced, on which the success of the operation depends, was correspondingly greater. (3) After an interval of ten days or a fortnight, low amputation (a Syme's) was performed in the second case as a time-saving measure to ensure more rapid convalescence.

Clinical and Laboratory Notes.

A NOTE ON THE CHARACTER OF THE CEREBRAL CEREBRO-SPINAL FLUID IN A CASE OF GENERAL PARALYSIS.

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KNOWLEDGE of the character of the cerebro-spinal uid withdrawn by lumbar puncture, in health and sease, is now almost universal. Knowledge of its character when withdrawn by cisternal puncture is fairly common. It is unlikely, however, that many have had an opportunity of examining the fluid in a case of syphilis of the nervous system, in the state in which it lies in the ventricles of the brain, and a recent experience in hospital practice may be of interest.

The patient was infected about the age of 17. He began to develop signs of general paralysis early in 1927, at the age of 41, when he had been elsewhere under treatment for tabes dorsalis, intravenous and oral, for four years. His serum and lumbar cerebro-spinal fluid had given completely positive tests for syphilis in 1923, and gave them again on admission in 1927. Four combined treatments of salvarsan and salvarsanised serum were given; on the three last occasions the serum was run into the right and left cerebral lateral ventricles alternately through a needle passed through a hole drilled in the skull.[1]

[1] Sir J. Purves-Stewart: THE LANCET, 1925, ii., 1159; Hildred Carlill: THE LANCET, 1926, ii., 1212.

Table of Results.

	Ventricular fluid.			Lumbar fluid.		
ates of withdrawal ..	(1) 14/3/27.	(2) 31/3/27.	(3) 7/4/27.	(1) 7/3/27.	(2) 31/3/27.	(3) 7/4/27.
lls per c.cm. ..	2 S.L.	1 S.L.	1 S.L.	43. S.L. .. 93·0 % P.C. .. 0·5 % E.C. .. 4·0 % P. .. 2·5 %	21. S.L. .. 94·0 % P.C. .. 0·0 % E.C. .. 1·5 % P. .. 4·5 %	18. S.L. .. 95·0 % P.C. .. 0·0 % E.C. .. 2·0 % P. .. 3·0 %
otal protein	0·01 %	0·0075 %	0·0075 %	0·05 %	0·04 %	0·035 %
obulin	Faintest trace.	Nil.	Nil.	Marked excess.	Slight excess.	Slight excess.
assermann reaction.	Positive (over 10 M.H.D.'s of C.)*	Positive 21 M.H.D.'s.	Positive 17 M.H.D.'s.	Positive (over 10 M.H.D.'s.)*	Positive 25 M.H.D.'s.	Positive 24 M.H.D.'s.
nge's colloidal gold curve	3333210000	4433210000	$44\frac{4}{3}3210000$	5555432000	5555543100	5555543200
lorides	—	0·702 %.	0·714 %.	—	0·749 %.	0·742 %.
gar †	—	Normal.	Normal.	—	Normal.	Normal.

S. L., small lymphocytes. P. L., plasma cells. E. C., endothelial cells. P., polymorphs.

* The upper limit of inhibition of hæmolysis was not tested in the first specimen of each. M.H.D. = minimum hæmolytic dose of complement which hæmolyses 1 c.cm. 5 per cent. sensitised sheep's red blood corpuscles.

† Sugar was not tested for quantitatively, a 1 : 10 dilution of Fehling's solution, with an equal amount of cerebro-spinal fluid, giving almost complete reduction, as in most normal cerebro-spinal fluids.

We are not concerned here to defend or otherwise the rationale of treatment by salvarsanised serum. We merely wish to draw attention to the character of the ventricular, as compared with the lumbar, cerebro-spinal fluid; they were withdrawn simultaneously except on the first of the three occasions. From the table of results given above it will be seen that the first specimens of ventricular and lumbar fluid were obtained on different dates. The results suggested that the investigation of fluids obtained simultaneously would be of considerable interest.

A point of interest in connexion with the Wassermann reaction was that, with the ventricular fluids, the hæmolysis tailed off over a considerable number of tubes—there was no free complement in the fluid itself—there being a trace of hæmolysis even in the earlier tubes, whereas with the lumbar fluids the point between inhibition and hæmolysis was sharply defined. Incidentally, in none of the fluids was any blood present, nor were spirochætes detected in any of them.

FATAL CASE OF FOOD POISONING, WITH DELAYED NERVOUS SYMPTOMS.

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THE following are notes on a case of poisoning attributable to food.

The patient, a commercial traveller, aged 53, was first seen by Dr. Hugh John, of Llangennech, on July 12th, 1927, about noon. He stated he had always enjoyed good health and gave the following history of his illness.

On July 10th, while out camping with his wife and daughter and three friends, he had a meal about 8 P.M. and ate heartily of a veal and ham pie. All the other members of the party except his wife ate the pie, but his daughter ate only a very small portion. The daughter did no develop symptoms, but all the others, including the wife who did not eat the pie, developed gastro-enteritis. The food eaten by the party on the Sunday, with the exception of the pie, was prepared by the wife.

At 2 A.M. on July 11th one of his friends was taken ill with diarrhœa and vomiting; another had similar symptoms at 8 A.M., and another at 2 P.M. His wife was taken ill on Tuesday; her symptoms seem to have been mainly those of gastritis and she was up and about on Friday. The daughter did not develop symptoms.

The patient left his home by the 9.10 train on the morning of July 11th seemingly quite fit. He arrived at his destination at 10 P.M. and then complained of feeling unwell. His symptoms seem to have been at that time those of malaise, and he went to bed. In the early hours of the next morning he developed severe diarrhœa and vomiting and was seen by Dr. John about noon. At this time he complained of severe diarrhœa and vomiting and of thirst, and gave the history already recorded. On physical examination nothing untoward was found. The pulse was full and regular and the rate was under 100, the temperature was 102° F. The motions were extremely frequent, greyish in colour, and watery in consistence, They contained no blood or slime. Vomiting and retching was very marked, and the vomit consisted of what he had just taken. Dr. John gave him a gr. ¼ pil. morph. and advised abstinence from all food, recommending the patient to take sips of water. The symptoms up to this time were those of a severe gastro-enteritis.

The next day, July 13th, the gastro-enteritis was still very marked but the temperature had fallen to normal. On that night Dr. John asked me to see the case. At that time the patient complained of abdominal discomfort and of exhaustion and thirst. The vomiting and retching were still very severe and the movements of the bowel almost continuous. The temperature was normal and the pulse-rate about 90. The pulse was regular in rate and rhythm and surprisingly good for a patient who had had such severe symptoms and persistent dehydration. He was alert mentally and answered questions readily and clearly and at this time there was not the slightest suggestion of any involvement of the nervous system. He was unable to retain anything given by mouth so morphia, gr. ⅓, was given hypodermically, and those in charge of him were advised to give him brandy ℥ss. in water every two hours and albumin water.

By the morning of July 14th he had improved somewhat and by Friday, the 15th, he was able to keep his feeds down for a longer time. He still, however, suffered from retching and was unable to retain a mixture of bismuth salicyla The diarrhœa had subsided to a large extent, but he w inclined to get out of bed and his mental state was not alert as it had been previously. There was a suspicion a slight delirium. He had also complained of dimness vision and of transient diplopia and there had been suspicion of slight ptosis. I now saw him again late Friday, and suspected from these nervous symptoms t the infection had been by *Bacillus botulinus*. As, howev the onset of nervous symptoms had been so long delay it was felt that the use of antitoxin was not likely to be any value. A marked feature at this stage was the coldn and clamminess of his limbs in marked contrast to his pu which was full and regular and about 90 in rate.

Early on Saturday morning, July 16th, he had what attendants thought was a convulsion. When seen by doctor he was stuperose and not convulsed. The descripti given, however, by those present was most suggesti I was called to see him in the evening. He was in a d stupor and could not be aroused. He did not recognise His extremities were again extremely cold and clam but the pulse was good, regular in rate and rhythm, a about 100. He was retaining his feeds and the diarrh had much improved. In the early hours of the morning July 17th his respirations became very rapid, and he rapi went downhill and died.

The interesting feature in this case is the delay onset of recognisable nervous symptoms in contra to a fairly rapid onset of classical symptoms of gastr enteritis. It was only after five days that evidence involvement of the nervous system appeared. view of the statement[1] that antitoxin has definite val if injected within a few hours of the ingestion contaminated food, antitoxin was not given. I n wonder whether antitoxin treatment might not ha been advantageous even if given late on in the disea

A further interesting feature in this case was t regular and full pulse contrasting with the clammin and coldness of the limbs so suggestive of collap The illness of his wife, who had not eaten the pie, peculiar.

TWO CASES OF ACUTE HÆMORRHAGIC PANCREATITIS.

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THE following cases have interesting features.

CASE 1.—A man, aged 45, complained of dull pain the epigastrium for the previous four days. The severity the pain had forced him to take to his bed on the last t days, and for three days there had been severe constipati On examination there was marked tenderness and rigid in the epigastrium. The tongue was moist and cle the temperature was 101° F., and the pulse-rate 120. influenza was prevalent he was labelled "abdomi influenza." Next day the temperature was 102°, and pulse-rate 110, but the patient said he was feeling bet though he looked anxious. On the seventh day the pu rate rose to 140 and the temperature to 104°. The p became more severe and the patient died.

At autopsy patches of fat necrosis were found in omentum and areas of softening and necrosis in the pancre tissue.

CASE 2.—A stout male, aged 40, for a week had continu dull aching pain in the hollow of the stomach, not relat to taking food, though it was worse between 3 and 5 P. It did not interfere with his sleep and for five days continued to attend to his work. Then he took to his b and when I saw him seven days from the onset he acutely ill and had an anxious look. There was rigidity tenderness in the region of the stomach. On question admitted that he had had a similar attack two years bef which had subsided after a week's treatment in bed. Si then he had suffered off and on from flatulent dyspep A tentative diagnosis of perforated gastric ulcer or ac cholecystitis was made. The patient's friends refused allow abdominal exploration, and he was kept under obse tion. He was placed in Fowler's position, and the diet restricted to small sips of water. An enema was gi without result. The tongue was clean and moist.

On the third day after admission he became wor the temperature was 102° F and the pulse-rate 120. the evening, however, the bowels were opened spontaneou he felt better; the temperature fell to 98·5° and the pu

[1] Price's Text-book of the Practice of Medicine, p. 375.

te to 98. But during the same night his condition again ok a sudden turn for the worse; the temperature shot up 104°, the pulse-rate was 140, and localised tenderness was tected in the right iliac fossa.

On the fourth day, in the morning, he became steadily ore ill. He developed severe hiccup and vomited four nes, the vomit being dark-coloured fluid, which was found be bile. Consent was now obtained for operation, and a ght paramedian incision about 5 in. long was made. The ritoneal cavity was opened and the omentum presented elf showing some yellowish areas of fat necrosis. A little ood-stained fluid was mopped out. The stomach and uodenum showed no perforation; a quantity of blood-ained fluid escaped from the lesser sac and the pancreas owed hæmorrhages and presented areas of sclerosis ggesting existence of a chronic pancreatitis. The appendix as adherent to the cæcum. The gall-bladder was distended d some concretions were felt at its neck. After pro-ting the general peritoneal cavity I aspirated a quantity fluid from the gall-bladder. It was black, like Indian ink, d had the same character as what had been vomited in the morning. After incision of its capsule the pancreas was drained through the lesser sac. The gall-bladder was rapidly drained through another incision on the right side. The patient collapsed, however, two hours after the operation and died, in spite of intravenous injection of saline and of pituitrin.

The onset in this case was very insidious; the patient suffered from a subacute type of pancreatitis. It is difficult to explain the lull in the symptoms during the afternoon before the day of operation. Probably the fluid exudate in the lesser sac escaped into the general peritoneal cavity through the foramen of Winslow and led to toxic absorption, giving rise to rapid pulse, high temperature, and hiccup. The vomiting of pure bile was a very striking phenomenon due to regurgitation through the duodenum. I examined the patient specially for cyanosis and for ecchymosis in the loins, which is considered patho-gnomonic by some surgeons, but they were absent.

Medical Societies.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

JOINT MEETING WITH THE SECTION OF MENTAL DISEASES OF THE BRITISH MEDICAL ASSOCIATION.

AT a joint meeting held on Friday, July 22nd, in te Edinburgh University New Buildings, Dr. AMILTON MARR (Commissioner of Control for otland) presided and Prof. G. M. ROBERTSON ened a discussion on the

REPORT OF THE LUNACY COMMISSION.

e Lunacy Laws of England and Scotland were, he d, in urgent need of amendment. Great changes social life and in the scientific world had occurred ce the passing of the Scottish Act in 1857, but this t had the advantage that it recognised the amount position of the medical profession in the atment of mental diseases. Under it no layman s called upon to see the patient on certification, l no lay committee was responsible for his removal discharge. To this feature must be ascribed the cess of the Scottish system, which had gained the nplete confidence of the people. No case of proper detention had ever been recorded in the urts. The English Act of 1890 was a complete, ical, and accurately drafted instrument. Its very fection from the legal and administrative points of w had been a calamity to the patient. The medical ect of the problem had been overshadowed by the nting fear of improper detention, so that laws cted for the welfare of the insane person had turned o be to his detriment. One gratifying and mediate result of the Royal Commission had been allay all anxiety in the minds of reasonable people to improper detention; such cases had not been nd. Future legislation, therefore, should not be minated by suspicion and misgivings. The Com-sion had also found that, since the stigma of tification was keenly felt, it should be a last resort l not a preliminary to treatment. The facilities for atment without it therefore called for extensive elopment. The keynote of the past had been ention; the keynote of the future should be preven-n and treatment. The arrangements suggested for untary treatment were satisfactory. For the oluntary three procedures were recommended: Emergency Order, the Provisional Treatment er, and the Reception Order. The first of these, ned by one doctor and a friend or public official, not a certificate of insanity and remained in force seven days only. It appeared quite satisfactory.

The Provisional Treatment Order.

n the provisional order one doctor would make the mmendation, which would last from one to six ths only. It was intended to ensure treatment for the probably recoverable patient without certification. The signature of one doctor only was, however, a mistake; as a safeguard and a second witness or observer only, apart from his value as a second medical opinion, the second doctor must meet with general approval. A niggardly economy where the liberty of the subject was concerned was indefensible, but it was particularly objectionable if the omission of the second doctor were responsible for the repeated visits by laymen.

Another difficulty was the basis of the order, which was made a matter of prognosis, notoriously the most difficult and uncertain problem in psychiatry. It had to be solved by the general practitioner who had little experience and by the justice who had none. Every successful doctor was an optimist, and it might safely be assumed that if this became law every patient, save a chronic or absolutely hopeless case, would get the benefit of the doubt and be treated under the provisional order—an excellent thing. The terms were better expressed in the Scottish Schedule G, which used the words "where the malady is not confirmed" and "with a view to his recovery." The intention could always be honestly remedial, however faintly hopeful the outlook. It would be better to drop the dubious procedure of prognostication alto-gether, and give every patient for whom there was the least hope the benefit of the provisional order treatment for six months. No objection to full certification could be taken after the six months' test had failed, or for chronic cases.

It was a matter of profound regret that the justice had to intervene in the provisional order; such a recommendation was astonishing in a report that recorded no case of improper detention and that breathed medical aspirations and professed thera-peutic and preventive ideals. It was clear that unmedical legal procedures had in the past been the chief impediment to early treatment. The treatment to be given under this order was only temporary and essentially remedial. There was no need for the justice, particularly if two medical men were involved. Miscarriages of justice had occurred in the law courts, yet no comparable cases could be found in the mental hospitals. In Scotland for 70 years thousands of persons had been placed in mental hospitals without seeing a magistrate, and no case of improper detention had ever been found. This record of the medical profession was beyond all praise, and proved that their honour and vigilance were no mean safeguard.

Another safeguard which the Royal Commission did not seem to have appreciated was the Scottish right of appeal to two independent medical men. The sheriff's reception order was wholly given on the written opinions of the two doctors first called in, and the patient, his friends, the sheriff, or the General Board of Control could call in two other doctors, who formed for the time being the supreme and final court of appeal. Thus in Scotland there was a purely medical system that afforded complete protection, had stood the test of time, and satisfied public opinion.

Judicial Intervention.

Infringement of the liberty of the subject without the intervention of the judicial authority was not without precedent in the domain of mental disease. It appeared to have been practised in England for 45 years without abuse, and was still practised in Ireland. Judicial intervention was not desired by the patient nor by his relatives. It was quite alien to medical feeling. It created difficulties, added complications, and caused delay at a time of great trouble. If there must be some form of judicial intervention the Scottish procedure at least preserved the integrity of the medical ideal, respected the sanctity of the home, and introduced the judicial element in a purely legal capacity. The sheriff who examined the certificates was an experienced barrister and a salaried judge; he made no quasi-medical examination of the patient, and if the forms were in order and the facts satisfied him he invariably signed the order. All these duties were just as carefully performed by the General Board of Control, and there was no reason why the certificate should not be signed by that body instead of by the sheriff.

Dr. Robertson then drew a vivid picture of the process of treating a mental patient under the proposed scheme when the justice had to see the patient in his own home, confer with relatives and doctors, and exercise a "directed discretion." Six months later the justice must see him again, and at this time the patient could employ a solicitor; with a manic patient lively scenes might well occur. The more nearly judicial intervention was judicial in character, the more closely would this picture accord with actual events. The perfunctory way in which the justice often performed his duties in the past might have been a saving grace. It was clear that adequate protection existed and was afforded by other means. To Scotsmen this form of amateur medicine seemed a monstrous and intolerable invasion of the sphere of the physician, and nothing less than a caricature and a mockery of medical science and practice. Medical men in England had acquiesced in it in the hope that it would relieve them of some responsibility; that hope had not been fulfilled.

In conclusion Dr. Robertson said that the provisional treatment order formed the most striking departure from precedent of all the recommendations in the Report of the Royal Commission. It conferred its privilege not only on voluntary patients, but also on volitional but resistant ones. For the enjoyment of its full benefits, however, there should be certain modifications. Two doctors should be called in, with the right of appeal to two independent doctors. This would make it unnecessary for the judicial authority to visit and see the patient, a requisite which perpetuated those legal formalities that had in the past delayed treatment, blighted attempts at prevention, and differentiated mental disorders from other illnesses. The justice should be replaced by the Board of Control, a strong medico-legal body accustomed to visit patients and familiar with the requirements of the law. The conditions of the order should be altered, from prognosis to the terms of Schedule G.

Discussion.

Dr. E. MAPOTHER said he had been profoundly disappointed with the Report, which was chiefly devoted to the doubtful prevention of non-existent abuses. The public were much more concerned with the questions of where and how than with the precise procedure under which they were to be treated. Voluntary treatment in county mental hospitals, for instance, would make a lot of difference. The Report lacked constructive imagination. The distinction between voluntary cases and involuntary was, *pace* Prof. Robertson, not clear-cut, and this ignoring of the voluntary patient was the Report's chief defect. Many of the most recoverable cases were voluntary, and those ought to have the best treatment without the intervention of justices. Again, under the Report, the voluntary patient who passed into a state of unwillingness would have to be certified within a month (the Provisional Order was nothing but certificate, except that the patient saw a magistra more often). Some other method was necessary fe these patients, by which they could be treate temporarily outside an asylum. Another grav objection was that the doctor might have to wait seve days to have his patient seen by a magistrate, ar that would drive most mental consultants to th use of the emergency order. He was in favour having a special certifying medical man to gi certificates under the Provisional Order. Finally h pointed out that, when the Provisional Order te minated and a reception order was in preparatio a justice, assisted by his clerk, examined the doct and the patient. The patient might choose anyone h liked to attend on him, and the justice could call upo the doctor to "justify" his certificate. This kind trial, at which the patient could be represented b counsel and the medical man could not, was mo objectionable.

Dr. T. B. HYSLOP reminded the meeting that th first duty of a practitioner was to his patient, the ne to the community, and the last to himself. The fear certification and the stigma which it attached to th family of the patient were, he said, often mo formidable than the disease and capable themselves contributing to the development of mental disorde He desired a sporting chance of relieving patients their difficulties without imposing this stigma upo them, and for this reason he welcomed the Repo which would remove many of the evils of certificatio He favoured the elimination of the judicial authorit the selection of magistrates with knowledge of th subject, and the provision by local authorities specialists to advise the general practitioner.

Dr. W. F. MENZIES stated that medical men h everyone on their side in this matter—practitione patients, relatives, and friends; against them we only the lawyers and the cranks. Lawyers, howev were necessary to the community. He sympathis with the medical man who, under the Provisiona Order, had to have three interviews with a justice a his clerk, and perhaps to forego a whole day's work a travel a long distance to settle whether his patie was to be immured or not. The profession had decide firmly whether to oppose the Royal Comm sion's Report altogether, or to take the good points it and concentrate on amendment, keeping in t forefront the needs of the non-volitional case. He w against opposing the Report, but held that th attendance of justices at the patient's home w absolutely impossible in any but the largest centr It usually took a justice three weeks to see a patient t present, and with 100 voluntary patients out of 200 a hospital the scheme would break down. Thr quarters of the non-volition patients would have to e discharged because no justice would ever see the He suggested that the visiting committees and boa of management of county mental hospitals should e made justices ad hoc.

Dr. RISIEN RUSSELL said he would be content f only England had the privileges of Scotland. e wanted to be allowed to treat patients effectively r at least a year without legal intervention. The iss were: should the profession have the whole say n the matter of certification? and should a doctor e immune from civil action for wrongful certificatio? Treatment was a medical matter, but depriving a per n of civil rights was a legal one. The profession co d only claim protection if they accepted legal interv tion and were prepared to give evidence on oa. The examination of the patient by a legal authori y need carry with it no publicity, and it would be n advantage if the justice had no medical training, r he would view the matter from a standpoint differ t from the medical one. He welcomed the Provisio al Order; the emergency order had been so much abu d in England that there was every justification for e interposition of a magistrate. It was reasona le to have a specialist also signing the certific e, and to accept every safeguard of the patie 's interests.

Dr. DONALD ROSS (Cassel Hospital) quoted the mark of a medical superintendent at Zürich that he borderline between the sane and the insane was rtification alone, and advocated that one of the gnatories should be a member of a hospital staff.

Earl RUSSELL said that the Royal Commission had een much impressed by Dr. Robertson's evidence and ie system he was able to administer. They did not ndervalue the medical point of view, but when dealing ith legislation it was no use discussing a matter from iat aspect. The public feeling must not be over-ooked, and an anti-medical view had been presented) the Commission. For some reason or other there as in England, among the great mass of the popula-on, a suspicion of doctors, and no legislation that nored that could hope to get through Parliament. he House of Commons represented the stupidity as ell as the intelligence of the people. Those opposed) the medical view were not, as Dr. Menzies had iggested, only lawyers and cranks. A vast body of ninformed and uneducated public opinion regarded ie doctors as only too ready to certify and without ason. No doubt we should get on as well without ie judicial authority; indeed, the Board of Control as the real safeguard. It was entirely undesirable r the justice to have medical knowledge; it was not r him to form an opinion, from a very imperfect edical diagnosis of his own, whether the patient were ne or not. His duty was to see that care had been ken and that the papers were in order. There were ie gravest objections to anything like a public or ivate trial; the less the proceedings took the form a forensic contest the better. To treat voluntary atients involuntarily would destroy the whole dvantage of the voluntary system. The urgency order as often used unnecessarily and it was important that should not be abused.

Sir DAVID DRUMMOND (Newcastle-on-Tyne) ex-essed agreement with Earl Russell and pleasure at ie good reception the Association had accorded to ie Report. He regretted that it had not been ossible to protect the practitioner more thoroughly.

Sir FREDERICK WILLIS (Chairman, Board of Control) id that the Minister of Health was very anxious to ass a new Lunacy Law, but the Ministry was not arliament. Parliament was governed by public inion, which was still "frightfully superstitious." mething more than formalities prevented people tting mental treatment; they hated to admit that ere was anything mentally wrong with them because sanity was still regarded as such a dreadful thing. atients would be better divided into three groups—luntary, involuntary, and unwilling. It was not an fringement of a patient's liberty to give him treat-ent. It was a pity that the Commission's Report pped short at the statement about treatment for ute recoverable cases; it should have gone further d stated what the Commissioners thought right. was not for them to consider public opinion. The ard of Control believed that adequate safeguards uld be obtained without the intervention of the stice, and suggested that the "Provisional Order" tients should only be admitted to institutions which e Board had previously approved. The Board had en much distressed by certain recent legal cases. appeared that a jury was an absolutely unsuitable bunal for this purpose. It was quite absurd for such body to say they were satisfied that an individual d been sane 12 years before. There was no ground insisting on two certificates other than the grati-ation of public sentiment, and a financial point s involved. It was extremely important that eryone should do what they could to break down e superstition surrounding mental illness.

Sir ARTHUR ROSE (Scottish Board of Control) said at the Report was a very valuable strategical con-bution, and had secured unanimity by going only st as far as would be accepted. A minority report uld have been most harmful to legislation.

Dr. C. O. HAWTHORNE (London) said that the public titude towards certification must be most carefully nsidered. The Board of Control was not to blame; it came on the scene too late. The stigma remained even if certification were found to have been wrong a few hours later. Enormous importance was attached to the liberty of the subject. But in addition to these two very important factors there was a third which had impressed him, and that was the position of the doctors at this moment. The practical situation was that many doctors were not only reluctant but determined not to sign certificates under the present circumstances. Deeds of partnership were being drawn up with the condition that neither member should undertake this work. Here was another sentiment which must be respected. Doctors alone were competent to judge when mental disorder existed and how it should be dealt with. Another sound position was that the State came in and said: This is a form of medical treatment which invades the liberty of the subject, and such treatment shall not be imposed until we are satisfied that it is necessary. That being so, it was for the State to accept responsibility when it assumed authority. The doctor might be asked for advice—i.e., for his contribution in the form of evidence, and ought to have the same immunity as other witnesses. The choice of action lay between the high academic doctrine that the public must be educated, and the practical step of accepting the State's claim to intervene, but emphatically telling it that it must then accept responsibility.

Dr. C. H. BOND (Commissioner, Board of Control) confirmed Sir Frederick Willis's account of the attitude of the Board of Control. He related the history of the Committee of Inquiry into the Lunacy Acts in 1884, when the Earl of Shaftesbury was chairman of the Lunacy Commission, and vividly described the distress of the great-hearted Earl, particularly at the suggestion of judicial intervention. Dr. Bond asked whether it were yet too late to relieve the justice of a task for which in most instances he had no taste. If the public really knew this piece of history and the complete absence of cases of wrongful detention, they themselves would give the pendulum a swing in the other direction. He did not think the law should impose on the Board of Control the duty of visiting cases in single care; any visitation should be done by medical members.

Dr. L. V. BRIGGS (Boston, Mass.) described his experiences on the Board of Control in Massachusetts under three different political administrations. The medical societies there had succeeded in educating public opinion by joint meetings and discussions and by belittling the ideas of heredity in mental disease and of the stigma of entering a mental hospital. A review of 28,000 certified cases had shown an hereditary factor in 54 per cent. only. In his State there was a system of six months' parole on release from hospital; during that time the patient could be brought back to the hospital without legal proceedings. The magistrate had a right to see the patient, but exercised it in less than 10 per cent. of cases. In only one instance had damages been awarded against a doctor, and then the judge had intervened, saying that it was against the evidence and against the law.

DONATIONS AND BEQUESTS.—Mr. Henry Peter Hodge, Kettering, left £250 to the Kettering General Hospital and £50 to the Kettering District Nursing Association.—Among other bequests the late Mr. George Edwin Lowe, J.P., of Sutton Coldfield, Warwickshire, left £2000 each to the Princess Alice Orphanage, New Oscott (a branch of the National Children's Home and Orphanage), the Birmingham General Hospital, the Queen's Hospital, Birmingham, and the Devonshire Hospital, Buxton; £1000 each to the Home for Incurables, Leamington, the Women's Hospital, Birmingham, and the Children's Hospital, Birmingham.—The late Mrs. Sarah Wood, of Blackheath, left by will £1000 to the Victoria Cottage Hospital, Maryport, to found a bed; £100 each to St. John's Hospital, Blackheath, the Blackheath and Charlton Cottage Hospital, and the Miller Hospital, Greenwich.—The late Mr. Edmund Thomas Child, of the Temple and Wimbledon, S.W., among other donations, left £1000 each to St. Andrew's Hospital, Dollis Hill, and the Hospital of St. John and St. Elizabeth, Grove End-road; £100 each to North Wimbledon Hospital, the South Wimbledon Hospital, and the Central Home for the Poor Mentally Defective Children, Worcester.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 235.*)

SECTION OF MEDICINE.

WEDNESDAY, JULY 20TH.

Prof. G. LOVELL GULLAND (Edinburgh) presided at the first session of this Section when Prof. H. MACLEAN (London) opened a discussion on the

RESULTS OF INSULIN THERAPY IN DIABETES MELLITUS.

The four years which had elapsed since insulin was introduced were sufficient, he said, to show its influence on the disease. Insulin, which was essential for the correct use of sugar and fat, could be supplied in adequate amounts, and the chief difficulty in treatment arose in balancing the diet and the insulin. Much had been learnt in the past about the value of dietetic restrictions in the treatment of diabetes but the results had been disappointing. Although the patient lost all symptoms of the disease and did well to begin with, after two to four years a deterioration took place and death usually occurred as a result of coma or some intercurrent disease. The so-called diabetes in elderly subjects often presented a different picture from that occurring in young people, as glycosuria was the only symptom and ketosis rarely occurred. He did not think that this condition was true diabetes but a simple glycosuria, dependent on an inability to store sugar in the normal manner in the liver and muscles. Such glycosuria often did no harm though the condition sometimes developed into a true diabetes. Dietetic treatment worked admirably with this type of patient, whereas without insulin the true diabetic rarely lived more than four to six years.

Since insulin had been used, 291 patients had been treated in the Medical Unit at St. Thomas's Hospital. All these showed a definite ketosis and the majority were young or middle aged. Cases with ordinary glycosuria without ketosis were not included. Every patient had been first treated as an in-patient and afterwards watched in the out-patient department.

Year.	Admitted.	Deaths to date.
1923–24	77	5
1924–25	76	2
1925–26	68	3
1926–27	70	2
Total	291	12

Several of these patients were admitted in coma; a number developed coma, three of them on two occasions; all these were now doing well. Two patients with tubercle bacilli in the sputum were still alive and in fairly good health. Of the 12 deaths, one girl of 19 developed coma outside and was treated by her own doctor; another was admitted at a late stage; three recovered from coma but died of heart failure. In all the others coma developed as the result of some such complication as influenza, pneumonia, or a septic lesion. The death-rate was nearly 4 per cent., which was an extraordinary improvement over the results of dietetic treatment. It was probable that of the 77 patients admitted in 1923–24 no less than 38 would have died; whereas, with insulin 72 were alive and well. Only one patient had been seen who did not respond to insulin, and as an autopsy was not allowed it was not possible to say that no other complication was present. These figures showed that the disease had been shorn of many of its terrors and it ought to be possible to control any uncomplicated diabetes and to restore the patient to a fair degree of comfort.

There were, however, Prof. MacLean admitted, some difficulties in the treatment. An acute illness caused the insulin to lose its effect and the dose must be considerably increased. Very often the medical man took the view that some complication which made the patient unable to take the usual die indicated a decrease in the dose of insulin. Suc treatment was often fatal as the dose of insuli should be increased at an early stage of the com plication. If this was done the grave consequence could often be avoided. The results with childre were, on the whole, good, as 30 children under th age of 10 had been treated in four years and the were all alive and in good health. The hopes of a re cure occurring in children had not been fulfilled a the insulin could not be abandoned although it ha been reduced in some cases. Elderly persons responde to insulin equally well and symptoms such as weakne or neuritis improved. Insulin was of the utmo service when an operation was necessary; wit insulin a diabetic had about as good a chance und the knife as a normal person. The mortalit statistics were not so good as would have bee expected as there had been no diminution in th number of deaths due to diabetes. This might b due to the fact that the incidence of diabetes ha largely increased and that without insulin the deat would be much greater. The examination of th tables showed that the age-incidence had shifted ar that the majority of deaths occurred in elderly person These had probably died from another disease.

The results with comatose patients were ver striking, but much depended on the quickness ar energy of the medical attendant. If treated ear recovery should be the rule, especially if the patie was young and otherwise healthy. The use of alka in coma was contra-indicated, as Goldblatt ha shown that a dose of alkali prolonged the state ketosis produced in a healthy adult by carbohydra starvation. Although it was better to aim at keepi the urine sugar-free and the blood-sugar norm many patients did very well even though glycosur existed. He deprecated giving insulin more tha twice a day because of the effect on the mentali of the patient. Once the patient knew how estimate his diet it was unnecessary to weigh eve meal. None of the pancreatic mouth preparatio on the market had, he said, the slightest effect on t disease. Synthalin, the newest synthetic produc did produce some effect in certain cases, and it w conceivable that some effective synthetic preparati would be discovered. Meanwhile, the view must accepted that insulin was the only useful substan in the treatment of diabetes.

Prof. PETRÉN (Lund, Sweden) said it was t early for him to draw general conclusions as t total number of cases was too small. He ha however, analysed the figures for patients admitt in coma.

Admitted in coma	57
Recovered	42
Died in hospital	4
Died in coma at home	4
Died at home of other diseases	7

These figures were very satisfactory and were ve similar to those of Joslin. He thought that intravenous injection of dextrose at the outset treatment was bad practice. The diet which he us subsequently was one low in protein and the carb hydrate in which did not exceed 50 g. He had be struck by the mortality figures for Holland; bel the age of 50 there was a decrease in the number deaths, from 50 to 65 there was no change, above there was an increase.

Dr. R. D. LAWRENCE (London) said that t properly treated diabetic patient was so well that one would know he had diabetes unless he was se taking his food or an injection. Failure was due the following causes: 1. The presence of anoth disease; he had seen three patients with carcinom of the pancreas. 2. Coma—of the comatose patien six had died out of 24; these deaths he ascribed circulatory failure and he gave small doses of adrena to aid the heart. 3. Resistance—he had only se one person who was insulin-resistant; he requi 400 units a day to keep the urine sugar-free. All t pancreatic extracts on the market were useless.

isagreed with Prof. MacLean as he considered that o real distinction could be made between the iabetes occurring in old people and that in young dults. The difference was only one of degree; the ondition in elderly people should be treated efficiently.

Dr. P. J. CAMMIDGE (London) divided cases into ree groups: (1) those with defective utilisation and efective storage; (2) those with defective storage nly; and (3) those with a low renal threshold but o other defect. The mortality in the first group had een decreased from 49 to 20 per cent. by the use insulin; in the second group from 9 to 4 per cent., hile there were no deaths in the third group. Death as always due to another disease. He had used a y preparation in a few cases along with insulin nd thought that it had helped a little.

Dr. O. LEYTON (London) had only known two sulin-resistant patients. One was still alive and irly well, but the other had died in coma in spite large doses of insulin and no septic disease had en found at the autopsy. In only one case had a ue recovery taken place. He thought that the ood-sugar should always be kept below 0·15 per nt. He had analysed 325 cases; of these, 6 per nt. had died; 27 had increased the dose of insulin; had kept the insulin the same; 26 had decreased e insulin; 2 had given up insulin; 33 had increased e diet; and 5 per cent. had decreased the diet.

Prof. D. MURRAY LYON (Edinburgh) said he gave sulin to patients for the following reasons: If a vere ketosis persisted, if severe emaciation was esent, if the limit of carbohydrate tolerance was o low to support life in comfort, if the urine con- ined sugar in spite of careful dieting. He thought at if the disease was properly treated it was not ogressive. Recovery took place in one case where e insulin had been decreased from 170 units to nil d the patient had kept well for 15 months. The uses of a fall in tolerance were as follows: (1) omis- n of insulin, (2) carelessness in the diet, (3) emotional sturbance, (4) toxæmia of some kind, (5) lack of e usual exercise. He thought that the urine should ways be kept free from sugar and that three doses insulin should be given if necessary. He dis- reed with Prof. MacLean in the distinction he had awn between the glycosuria of elderly persons and ung adults.

Prof. L. BLUM (Strasbourg) said his early results th coma had not been so good as his recent ones. had now increased the dose of insulin considerably d gave it half-hourly if necessary. The urine was amined at frequent intervals and if sugar was sent another dose was given. When no sugar s present, estimation of the blood-sugar was visable, but changes in the patient's condition were en a guide to the correct dosage when he had come conscious. He disagreed with Prof. MacLean out the toxic action of alkalis, as he had found that e cells of the cerebral cortex of comatose patients ntained much less sodium than those of healthy rsons; alkali should therefore always be given to matose patients.

Dr. G. GRAHAM (London) said that the tables for gland and Wales showed a steady rise in mortality m diabetes since 1900, broken only from 1917–19, en strict rationing caused a decrease, mainly in tients over 50. Since the introduction of insulin re had been a slight decrease in male mortality, t female mortality was actually higher than ever. analysis of age-groups showed a big decrease in decades under 50, undoubtedly due to insulin, in the 50–60 group male deaths had only reased slightly while female had increased, and er 60 both had increased considerably. The rease after 60 was partly due to other diseases, also to the belief that after that age diabetes s a mild condition which required little treatment. believed that the condition was essentially the ne as that in young people but developed more wly. It should be treated drastically as con- erable recovery might take place. As a proof of healthy condition of insulin patients, he instanced two girls who had begun to menstruate normally and four women who had suffered little harm from a pregnancy although this was always an added danger. He did not think alkalis did harm to comatose patients; in this condition if a blood-sugar estimation could not be made he always gave a dose of 50 g. dextrose.

Dr. C. G. LAMBIE (Edinburgh) said that diabetes in elderly people showed certain differences; insulin had a much greater effect on the sugar and little disturbance took place when insulin was stopped. In them the respiratory quotient was normal. He thought that the diffusion of glucose into the cells must be different, especially as the symptoms associated with hypoglycæmia in young adults occurred when the blood-sugar was still high. The difference might be explained by the presence in the elderly person of a substance which countered insulin. These patients should be prevented from passing sugar either by diet or by insulin.

Dr. F. M. SMITH (Harrogate) spoke of psycho-neuroses playing a part in hindering full recovery.

Prof. MACLEAN replied briefly. Elderly persons, he said, should certainly be treated properly whatever views were held as to the condition at their age. Alkalis did no harm to comatose patients in small doses.

THURSDAY, JULY 21ST.

At the second session a discussion on the

TREATMENT OF ACUTE LOBAR PNEUMONIA

was opened by Prof. JOHN HAY (Liverpool). Pneumonia, he said, killed 36,990 persons in England and Wales in 1925, the mortality being approximately 20 per cent. It was admittedly an infection in which the causal organism was the pneumococcus, either alone or in combination with other organisms, the primary site of infection being in the lungs. The outlook depended on the virulence and type of infection and the resistance of the patient.

Type.	Incidence in adults—	Mortality per cent.
1	nearly one-third	25
2	,, one-quarter	33
3	,, one-tenth	50
4	more than one-quarter ..	10

Out of 100 cases 75 would probably survive, 10 to 15 would probably die, leaving 10 to 15 in which correct treatment and good nursing might turn the scale.

As regards prophylaxis, patients nursed in a general ward should be screened off, sputum and clothing disinfected. Every nurse should be taught to hold a sheet of paper or gauze between the patient's face and the doctor's. Gargling with an antiseptic was advisable for those in attendance. Prophylactic injection of large doses of pneumococci had proved useful in the mines of South Africa in diminishing both incidence and mortality. Such protection was certainly advisable in the case of those nursing or treating pneumonia. The presence of anxious relatives made it difficult for the doctor to maintain a cool and balanced judgment; the tendency therefore was to do too much. The common cause of death in uncomplicated pneumonia was cardiac failure, the three important factors in its causation being (1) toxæmia, (2) anoxæmia, (3) stress on the right heart.

The main essentials of effective treatment were fresh air and complete rest. A fire, but no fug. No gamgee jacket but light loose clothing, opening down the front. Every unnecessary movement was to be avoided. Tepid sponging made the patient more comfortable. Plenty of fluid and fluid only should be given during the first 48 hours—water, glucose lemonade, fruit juice, and diluted milk; also tea or coffee, but not late in the day. Later, lightly boiled eggs and biscuits but not soups. At the onset calomel or salines should be given, and if necessary a simple enema. Distension of the abdomen should be watched for; it might be a grave complication by hampering the action of the diaphragm. If it occurred milk should be stopped, an enema given or a rectal tube inserted, and if necessary pituitrin injected.

About specific treatment there was considerable difference of opinion. His personal attitude toward the therapeutic value of vaccines in pneumonia was frankly critical. All the advocates of it stressed the importance of vaccination within the first three days. Captain Malone's paper, published in 1925, seemed to justify the conclusion that early vaccination proved effective in lessening the duration of the fever and accelerating the crisis. Type 1 serum appeared to be useful in Type 1 pneumonia if injected intravenously in doses of 100 c.cm. every eight hours.

Meanwhile symptoms were to be treated. Pain was incompatible with rest and must be mitigated. Strapping might be all that was required, or a mustard poultice or ice-bag might be effective. So long as the air passages were dry, morphine or other opiate, such as Dover's powder or omnopon, might be given. Insomnia was to be combated early with an ounce of whisky or brandy or paraldehyde ʒii. After the fifth day opium should be given very cautiously, especially if there was much secretion in the bronchi. From the first the measures should be directed towards the prevention and treatment of cardiac failure. Vasomotor tone was to be maintained by hydrotherapy. The depth of respiration could be increased by cool fresh air and the relief of pain. Toxæmia was met by specific treatment and by attention to the intake of fluids and elimination by bowel and kidneys. Oxygen was to be administered at the first indication of cyanosis; it was probably the best cardiac stimulant. The funnel method was futile. More efficient was the nasal catheter, the opposite nostril being blocked with cotton-wool; better still was the mask, but patients would rarely tolerate anything applied over nose and mouth. Barach had described a glass nose-piece and an oxygen tent. Digitalis had been shown to have a favourable action on the contractile power of the heart, quite apart from controlling its rate. Its routine use was of value, 45 to 60 ♏ of tincture being given from the start. If fibrillation occurred and if no member of the digitalis group had already been given, there should be no hesitation in injecting strophanthin intravenously.

No scientific evidence had been advanced in favour of the view that alcohol was a direct cardiac stimulant. In a series of 150 cases the mortality of those treated with alcohol was 15 per cent. greater than in those in which alcohol was not used. He was convinced, Prof. Hay said, that the prognosis in any particular patient was rendered graver by repeated doses of alcohol administered to prevent or to counteract cardiac failure. Alcohol was only of use to pneumonic patients under certain well-defined conditions, such as sleeplessness. Alcohol had indeed been shown to inhibit the immunising process upon which recovery depended. Glucose might be given by mouth or intravenously. Pituitrin was indicated if the blood pressure fell. Caffeine was a direct cardiac stimulant. Strychnine was very widely employed but its reputation exceeded its merits. Engorged jugulars, an increase of cardiac dullness to the right, and marked cyanosis justified venesection, but the relief afforded was only temporary. In practice the wise physician used few drugs.

Prof. W. H. WYNN (Birmingham) described some remarkable results of treatment with vaccines. These were best made of fresh cultures of virulent organisms. The first dose for an adult should be at least 100 million. Failing fresh cultures a stock vaccine could be used. If injected in the first 24 hours the patient's temperature dropped and general improvement occurred. The earlier the injection the more sure was the result. He showed lantern slides illustrating the almost uniform fall in temperature and in mortality-rate as a result of vaccine treatment.

Dr. H. MORLEY FLETCHER (London) emphasised the importance of keeping the patient quiet without repeated examinations. He advised giving digitalis, preferably as the tincture, as soon as the diagnosis was made. He quoted Dr. Armstrong's work for the Medical Research Council on the action of sodium nucleinate in pneumonia, in which no evidence was obtained that the immunity reaction was influenced by such injections. Dr. Fletcher had made clinical observations not only in lobar pneumonia but also in other acute infections with a low or moderate leucocyte count. The results were practically negative both as regards leucocytosis or benefit to the patient. Oxygen was of great utility but must be given early, systematically, and in sufficient quantity, when it calmed delirium and promoted sleep. The most useful method was the nasal tube.

Prof. R. J. S. MCDOWALL (London) spoke of the relief of high venous pressure by bleeding. He was of the opinion that when alcohol did have any good effect it was by lowering the venous pressure. Shallow respiration was the chief cause of anoxæmia.

Dr. L. S. P. DAVIDSON (Edinburgh) said he was convinced of the value of serum treatment and of prophylactic injections. A bad outlook must be expected if the sputum gave a pure culture of pneumococci. The worst cases gave a positive blood culture late in the disease.

Sir JAMES BARR (Liverpool) spoke of the importance of the heart in prognosis.

Dr. A. F. HEWAT (Edinburgh) regarded alcohol as essential in the treatment of all cases. The value of oxygen was also undoubted.

Dr. F. M. GARDNER-MEDWIN (St. Asaph) said that if sodium bicarbonate and glucose lemonade were given along with sodium nucleinate a crisis was initiated within 48 hours in nearly all cases.

Dr. D. H. BALLON (Montreal) showed an instructive series of X rays of the chest before and after lipiodol illustrating its aid in the diagnosis of cavities and in the classification of types of bronchiectasis.

FRIDAY, JULY 22ND.

Dr. R. A. FLEMING (Edinburgh) took the chair at the third session, when a discussion on the

PATHOLOGY AND TREATMENT OF PERNICIOUS ANÆMIA

was opened by the President, Prof. G. LOVELL GULLAND. The clinical picture of the disease, he said, was well established; its variations depended on the acuteness and severity of the attack and on the part of the body affected. A blood count was necessary for diagnosis; the principal criteria were a high colour-index, the presence of megalocytes (with or without megaloblasts), and a leucopenia. The platelets were reduced in number but increased in size. The high colour-index was due to the production in the bone-marrow of megaloblasts instead of normoblasts as the result of a toxæmia which affected the blood and marrow. This toxæmia was prone to occur in certain classes of people, more especially those of middle age and those who had a hereditary weakness of the bone-marrow. The toxin was still unknown, but certain facts about it were established. The it was slow in its action, and gradually cumulative until its maximal effect was produced. The patient as a rule recovered from the first attack either because the toxin was exhausted or because a relative immunity was produced. The process was repeated one or more times. The toxin was regarded as hæmolytic but it was probable that both the circulating red cells and those in the bone-marrow were poisoned and rendered a more ready prey to the ordinary phagocytic processes occurring in the bone-marrow, spleen, hæmolymph glands, liver, and elsewhere. The neutrophil series of leucocytes were also affected; these often did not exceed 4000 per c.mm. even when a septic condition was present. Other changes due to the toxin were sclerosis of the cord, necrotic areas in the liver, together with punctate basophilia of the red cells.

The organism which produced the toxin was not known as the blood culture was always sterile and no organism was seen in a stained blood film. A hæmolytic streptococcus had been suspected, but the changes in the bone-marrow were quite unlike those occurring with the known streptococcal infections. The same argument applied with still greater force to the col-

bacillus. Recent experiments by Moench, Kahn, and Torrey had suggested that the presence of *B. welchii* in the intestinal contents caused the condition. The stools of 33 patients contained more of this organism than those of the controls, but the bacilli were not more potent in causing hæmolysis than those of the controls. If *B. welchii* was in fact the cause the wall of the intestine must be more permeable than usual. Kahn and Torrey had damaged the wall of the stomach of monkeys and after feeding with cultures of *B. welchii* had seen the development of an anæmia similar to pernicious anæmia. This work was suggestive but needed to be confirmed. The evidence in favour of a spirochæte or protozoon was not good. It had been suggested that the hæmolysis was due to deficiency in cholesterol in the blood. Cholesterol when present in normal amounts presumably kept the hæmolytic unsaturated fatty acids in check; if the cholesterol was reduced in amount, hæmolysis might occur. The cause of the decrease in cholesterol was quite unknown. A more important point was the achylia, which was practically constant. Pernicious anæmia had developed in patients who had had achylia for many years and achylia was often present in the relatives of patients with pernicious anæmia. On the other hand, achylia frequently occurred in normal people and in many debilitating conditions. Achylia would cause a change in the intestinal flora, but to establish a causal relation the change in the flora should be present before the pernicious anæmia developed, for otherwise the changes in the flora might be due to the anæmia. Although the cause of the cryptogenic or idiopathic pernicious anæmia was not known there were other large groups in which the cause had been established. In bothriocephalus anæmia a cure followed the removal of the worm. The condition in horses was due to infestation of the gastric mucosa with the larvæ of certain flies. It also sometimes occurred in the course of sprue, malaria, syphilis, pregnancy, and over-radiation with X rays. Thus there were many conditions, known and unknown, which could produce megaloblastic anæmia.

Treatment was unsatisfactory from the point of view of ultimate cure, but nearly 100 per cent. recovered from the first attack and the great majority from the second. It was in the later relapses that the real difficulty occurred. Rest, fresh air, cheerful surroundings, general tonic measures were as important as in any other toxic condition. The diet must be regulated by the alimentary condition and varied between a full diet and peptonised milk. Minot and Murphy had used a rich liver diet, but his experience with this was limited; several patients had done well but others had not tolerated the diet. It was very important to regulate the bowels and colon lavage was often of benefit. Hydrochloric acid was used as a routine measure, for in medium doses it helped the appetite, but he had not found that the large doses advocated by Hurst were well tolerated. Arsenic was the standby; it was best given as the hydrochloric acid solution by mouth, the dose being gradually increased until the limit of tolerance was reached, and then maintained until the colour-index fell below unity. Iron should then be substituted. Organic preparations of arsenic had been of little use in his hands. Blood transfusion was not curative but might be of great service in helping a patient round a critical corner when the vitality was exhausted by the toxæmia. Splenectomy was advocated but he had never advised it. So much attention was now being focused on the disease that we might surely hope for advance; for himself he expected it from the side of the chemist or the bacteriologist rather than of the clinician.

Prof. W. K. HUNTER (Glasgow) said that there were two marked groups of pathological change, those in the liver and those in the bone-marrow. The net result was a hæmolysis of the red cells produced in the abnormal bone-marrow. Other points of importance were the family predisposition and the presence of an infection of some sort.

An important paper on the Treatment of Pernicious Anæmia with a Diet Rich in Liver, by Prof. G. R. MINOT (Boston, Mass.), was read by Dr. G. D. MATHEWSON. This diet consisted of 5 to 9 oz. of liver together with some red meat, a small amount of fat, and a reduced carbohydrate ration. In the last three and a half years 125 patients had been thus treated, the blood count rising to 4–4½ millions. The first sign of recovery was a rise in the number of reticulated red cells. These increased from the normal 1 per cent. to 20–30 after six days, remained high for about ten days, and then fell again to normal. The colour-index fell to less than unity, and the yellow colour of the skin and bilirubin in the blood disappeared, the average diameter of the cells becoming normal. Of the 125 patients, 60 had been treated for one year and their average cell count was 4·5 millions; 18 for two years and the average count was 4·6 millions; and three for three years and the average count was 4·8 millions. The achylia persisted in the 20 cases examined. The liver should be eaten either cooked or raw; it should not be boiled for a long time; it could be taken as liver pulp in 5-oz. doses twice a day. There was little difficulty in persuading the patients to continue the diet, as they felt so much better. The exact dose required after recovery was as yet unsettled. Some patients kept well on 5 oz. three times a week. An extract had been prepared which contained nitrogen in a non-protein form. The experiments with this were proceeding and were promising.

Prof. H. VAN DEN BERGH (Utrecht) said that complete absence of hydrochloric acid was most important in the diagnosis, as was poikilocytosis, which he had only found in one healthy patient and in records of two others. He held that the hæmolysis was the basic pathological fact and that the blood destruction took place in the spleen, as no free hæmoglobin was ever found in the plasma. He thought that the real cause was probably a protozoal infection.

Prof. KNUD FABER (Copenhagen) said that he had seen typical pernicious anæmia develop after a stricture of the ileum and with sprue, which had arisen in Denmark as well as abroad. In the idiopathic type achylia was constant and the intestinal flora was changed. He had known the disease to follow gastrectomy, but the fact that achylia was often present in patients who never had any symptoms was difficult to explain. Similarly many patients with bothriocephalus never showed any signs of anæmia. He had seen some patients recover after taking liver, and it would be most interesting to see if the anæmia of bothriocephalus and sprue would also improve.

Dr. A. F. HURST (London) gave figures to show the effect of achylia in causing the incidence of pernicious (Addison's) anæmia. He had known the disease follow achylia due to alcoholic gastritis, also in two cases of cancer. In the latter condition he thought the patients rarely lived long enough for the condition to develop. Dr. F. A. Knott had examined the duodenal contents of 37 cases and had found a hæmolytic streptococcus in 97 per cent., *B. coli* in 94, a staphylococcus in 40, but never any *B. welchii*. The achylia permitted the infection of the small intestine and made the contents more alkaline. He thought that prophylaxis should be practised and septic teeth removed. Acid should be given to persons with achylia, and it was quite easy to get patients to take 1 drachm in 6 oz. of orangeade or lemonade with their meals.

Dr. L. SCHIFF (Cincinnati) gave figures showing the bilirubin content of the blood in secondary and pernicious anæmia.

Dr. STANLEY DAVIDSON urged the claims of *B. welchii* as the cause of the hæmolysis.

Dr. W. E. COOKE (Wigan) showed pictures of the neutrophil cells in which all the young forms had disappeared and only those with multilobular nuclei remained.

Dr. SALISBURY SHARPE (London) thought that a spirochæte was responsible.

Prof. GULLAND expressed his appreciation of a stimulating discussion which had clarified many obscure points.

SECTION OF MEDICAL SOCIOLOGY.

FRIDAY, JULY 22ND.

THIS Section met under the Presidency of Dr. F. KAY MENZIES (London) to discuss the

FUTURE RELATIONSHIP OF MUNICIPALITIES TO THE VOLUNTARY HOSPITALS.

Mr. H. L. EASON (Guy's Hospital) dealt chiefly with the situation in London and said that the solution of the problem must vary with varying local conditions. The fundamental factor was the education of the medical profession; the teaching hospital must have the power to select for admission every type of case. He went on to enumerate the many forms of treatment at present given at rate-supported and municipal institutions. The Poor-law hospitals gave excellent treatment, but the stigma of pauperism and administrative restrictions as to boundaries were objectionable. There was great need for additional beds in London for surgical cases—e.g., for rapid admission of cancer patients, for orthopædic cases, and for treatment of tonsils and adenoids. But there was not the same need for medical beds.

Coming to concrete proposals, Mr. Eason set himself to answer the questions put by Sir Arthur Robinson, of the Ministry of Health, to the British Hospitals Association. There was no definite line of demarcation, he said, between the types of cases to be treated by voluntary and by municipal hospitals. But as teaching hospitals must admit every type they would have a more rapid turn over and municipal hospitals would have a larger proportion of chronic cases. Each class of hospital must be equally well-equipped and prepared to tackle anything. Specialism had a narrowing effect and was inimical to well-balanced treatment. The shortage of beds was most serious for cancer, and next for orthopædic cases, whilst the shortage for throat beds could not be estimated till the medical profession made up its mind about the indications for tonsillectomy. The teaching hospital would be the "mother" of the group and the medical and nursing staff might be pooled. There would be a free transfer arrangement for patients from one hospital to another and the standard of treatment would be the same. The stigma having gone, the hospital-using public would soon learn there was no essential difference between the voluntary and the municipal hospital. In London the County Council could not possibly undertake the management of 104,000 hospital beds and might hand over the administration of all the hospitals to the present managers of the voluntary hospitals. The present "voluntary" management of institutions for venereal diseases, which were entirely paid for by rates and taxes, formed a precedent.

Mr. M. A. REYNARD (Glasgow Parish Council) began by expressing the opinion that the Poor-law hospitals in Scotland would have reached a higher standard if there had been a good lead from a central authority. Hospital accommodation in remote districts was quite inadequate. Glasgow had three Poor-law hospitals—Stobhill, the largest, had 1700 beds—and all three were used for teaching purposes. Coöperation with the other hospitals was good; for instance, they took in cases of pneumonia for the medical officer of health, post-encephalitics from all Scotland for the Board of Health, and about 40 maternity cases a week. There was no pauper stigma. The Glasgow practice could be applied to Scotland. The needs of remote districts might be met by cottage hospitals linked up with a central hospital by motor ambulances. The parish areas were obsolete; their populations varied from 300 to 596,000, and the small areas must go. The observation wards of the mental hospitals probably provided the most interesting material for teaching purposes. With the extension of the period of observation to six months there was now a 50 per cent. recovery-rate in these wards without certification. Small districts were apt to put individual needs before those of the community; for example, two neighbouring towns had recently each erected a 100-bed hospital, instead of combining to erect one more efficient 200-bed hospital. The Board of Health should say what and where hospitals were needed. Voluntary subscriptions were often not voluntary but extracted. He thought it would be fairer to put all the cost on the rates and assess each area proportionately. Homes for incurables were needed everywhere and, of course, did not require the expensive staffing of a hospital. Every hospital should have its convalescent home. The Glasgow convalescent home at Dunoon, empty for a time at first, was now always full.

Sir HENRY KEITH (Hon. Sheriff-substitute, Lanarkshire) doubted if the time for fusion was ripe. There was a strong trend towards coöperation. Certain types of disease were obviously more suited for rate-paid treatment. State grants were justified for teaching hospitals, as they were doing national work. Facilities for transport favoured small hospitals as much as central large hospitals, because the expert could be transported as easily as the patient. He thought the cost of small hospitals was less. (Several subsequent speakers disagreed with Sir Henry Keith and thought that when efficiency was considered large hospitals were more economical than small.) Scotland had proportionately more voluntary beds than England. Stobhill had lost its Poor-law stigma during the war. He would be inclined to leave the voluntary hospitals alone, meanwhile getting power, as in England, to subsidise with representation on the management, in the event of future financial difficulties. Local authorities could do much by combination at present.

Dr. J. P. KINLOCH (M.O.H., Aberdeen) showed how the problem had been practically solved in Aberdeen. After the war there was one 160-bed Poor-law hospital empty, while the voluntary and municipal hospitals needed beds. The Poor-law authorities had handed over the whole of their hospitals to the municipality and the municipality had handed over the medical staffing of these hospitals to the medical faculty of the university. The municipal and voluntary hospitals were complementary and not rivals. It did not matter to the medical profession who did the management as long as it was efficient. Voluntary hospitals could not provide heart, tuberculosis, and orthopædic schemes. Aberdeen encourages the voluntary hospitals. The various types of hospitals were pooled for the training of nurses.

Dr. H. B. BRACKENBURY (London) thought there was a danger of encroachment on the province of the general practitioner and the panel doctor by the hospitals and municipal authorities and that the shortage of beds was exaggerated.

Sir NORMAN WALKER (Edinburgh) agreed very largely with Mr. Eason and Mr. Reynard. As the result of a tour in Scotland he judged there was much coöperation in progress, both legal and illegal. The interests of patient and of teaching hospital were the same. Adequate provision for incurable cases was a crying need. The pooling of medical staffs, without legislation, would go a long way towards solving the problem. Small, medium-sized, and large hospitals must be linked up.

Dr. DRUMMOND SHIELS, M.P., remarked on the agreement between the speakers. The public liked the voluntary system, but did not like flag days and stunts. The voluntary system was being eaten in by semi-compulsory levies and payments which were not very different from rates. The difference between the two methods at present was more sentimental than real. His preference was for municipal hospitals.

Dr. A. S. M. MACGREGOR (M.O.H., Glasgow) believed that the provision of additional hospital beds tend

meet the needs of the general practitioner rather an to constitute an encroachment on his work. e thought the control of the Poor-law hospitals ken over by voluntary bodies would be a difficult atter.

Dr. STELLA CHURCHILL (London) deprecated the tablishment of special hospitals and thought the eal should be to have all the specialties in depart-ents of the general hospitals. She mentioned that appeal had recently been issued for £100,000 for new special hospital in London.

Dr. ARTHUR MANKNELL (Bradford) said the Bradford alth committee had leased St. Luke's Hospital om the guardians. It still acted as a Poor-law spital, but he thought there was a tendency to rry home the Poor-law and panel patients and to velop St. Luke's as an A1 general hospital in rivalry ith the voluntary hospital. The voluntary system as not by any means dead in Bradford.

Mr. EASON, in his reply, said there could be no ereotyped line of development for every part of e country. In London the question was, Would e County Council tackle the business or leave it experienced hospital administrators? The aching of the students was fundamental and there ust be freedom of thought and liberty of teaching.

Mr. REYNARD said that large hospitals were just economical as small and much more efficient. he pooling of medical staffs had been accomplished Glasgow.

Reviews and Notices of Books.

ENETIC STUDIES OF GENIUS.

Mental and Physical Traits of a Thousand Gifted Children. Second edition. By L. M. TERMAN and Others. London: Harrap and Co. 1926. Pp. 648. 21*s*.

The Early Mental Traits of Three Hundred Geniuses. By C. M. COX and Others. Same publishers. 1926. Pp. 842. 21*s*.

THESE two massive volumes are the first fruits an inquiry into the constitution and characters genius which has been organised by Prof. Terman Stanford University with the aid of the Common-alth Fund left by Mrs. Harkness. Of the importance understanding genius there can be no question, d we have here a serious and sincere attempt at e quantitative study of some of its aspects.

The first volume deals with the characters of about 00 "gifted" children selected by various pro-essive tests from many thousands of their school-llows, of whom they form a good deal less than per cent. at each age. They are compared through-t with a random sample of similar unselected ildren, and the "intelligence quotient (IQ)" is used a measure of their giftedness. The results are set t in sufficient detail for criticism. We can note re only some of the conclusions which are reached. e most gifted children fall outside the normal rve—i.e., they are not simply extremes of the rmal variation, but represent something which is her qualitatively different or so greatly differing in antity that it comes to the same thing. The gifted up contains a preponderance of boys and a marked cess of Jewish and Northern and Western European ck, and is drawn more from the higher than the wer occupational levels. In physical growth and neral health the gifted group is distinctly above the erage. Giftedness usually appears at a very early a, and is general rather than special in its scope. e most intelligent children read more and sleep re than the average, whom they also surpass in ts of honesty, trustworthiness, and similar moral its; they show no deficiency in play interests. ne of the conclusions are in accordance with eneral opinion," some are quite in contradiction. is important to note that they are derived from study of facts observed on a large scale with such quantitative accuracy as is at present available. It should also be remembered that they are statistical—i.e., they apply to the general mass of gifted children and not to each individual gifted child. As a whole they carry the distinct implication that nature is more important than nurture.

In parallel with this study of the Californian child of to-day, Dr. Catharine Cox and her assistants have worried out the early history of 300 eminent men, and have endeavoured to evaluate their childhood intelligence from the available biographical material. The ground is obviously rather insecure, but the tale she has to tell is of exceptional interest. And she derives the important conclusion that the extra-ordinary genius is also the gifted individual who may be discovered in childhood by intelligence tests. That all gifted children do not achieve high eminence is explained by the further deduction from her collection of case histories that geniuses who come to adult fruition are characterised not only by great intelligence in their youth but by persistence of motive and effort, confidence in their abilities and great strength of character. It means something, therefore, when Galton writes to his sister: "I am 4 years old and can read any English book. I can say all the Latin Substantives and Adjectives and active verbs besides 52 lines of Latin poetry," or when John Stuart Mill reads Plato at 7 and writes a history of Rome. If the conclusions of this book can be widely dispersed, such precocious monsters may perhaps get rather more sympathetic treatment than they are apt to have.

CLINICAL PEDIATRICS.

Edited by R. S. HAYNES, M.D., Clinical Professor of Diseases of Children, Columbia University, New York. Vols. VI.–X. London and New York: D. Appleton and Co. 1927. 16*s*. per volume.

THE first five volumes of this admirable system of pediatrics received notice in THE LANCET of Jan. 8th. The high standard of their predecessors has been well maintained by the five volumes which have now appeared, and which deal principally with disease in children of the pre-school and school ages. Vol. VI., by Prof. Willis Campbell, and Vol. VII., by Prof. J. A. Foote, are entitled Orthopædics of Childhood and Diseases of Bones, Joints, Muscles, and Tendons. These two volumes are to a large extent complementary to each other, and their contents are not altogether indicated by their titles. Vol. VI. contains an excellent account of orthopædic procedures in childhood, and also describes diseases of bones and joints from a surgical point of view, special attention being paid to the differences between the growing tissues of the child and those of the adult, and to the methods of preventing deformities in bony disease. Vol. VII. is written from the standpoint of the physician, and is devoted mainly to the constitutional and infective disorders of the organs of locomotion. Rickets and congenital syphilis receive due attention, and are particularly well illustrated by radiograms. In a chapter on helio-therapy, natural and artificial, the indications for the various types of apparatus are discussed. Vol. VIII., on the Digestive System, by Prof. F. C. Neff, is written in greater detail than those referred to above, and includes disturbances in infancy. Questions of ætiology and treatment of obscure conditions such as cyclic vomiting and cœliac disease are presented in a critical and well-balanced manner; the author reserves judgment also on the path of infection in pneumococcal peritonitis. In Vol. IX. Profs. W. L. Funkhouser and R. G. McAliley deal with diseases of the respiratory system. The account which they give of lobar and broncho-pneumonia is admirable, the difficulties presented by atypical cases being extremely well indicated. Empyema is treated rather shortly; all methods of evacuation are regarded as surgical and excluded from the account, and no reference is made to the distinction between syn- and meta-

pneumonic varieties. In the chapter on tuberculosis the preponderance of primary foci in the lungs at all ages is emphasised. Vol. X., by Prof. L. T. Royster, is concerned with the physiology of growth in normal children, and also with the pathology of malnutrition. The last chapters deal with nutritional and deficiency diseases, which leads to some overlapping with other volumes, as rickets and scurvy are included. An interesting chapter on acrodynia owes its presence in this volume to the author's view that this condition is a variant of pellagra rather than a toxic polyneuritis. These volumes are as attractive in appearance and as well illustrated as those of the first series. The practitioner, for whom it is primarily intended, will find in this system of pediatrics valuable help.

AIDS TO TROPICAL MEDICINE.

Third edition. By C. E. BROOKE, M.A., L.R.C.P. Edin., D.P.H., F.R.G.S., Chief Medical Officer, Singapore. London: Baillière, Tindall and Cox. 1927. Pp. 228. 4*s*. 6*d*.

BOOKS as handy and practical as this one are welcomed by workers in the tropics who require a ready and concise source of reference to supplement the larger text-books on tropical medicine. It is therefore unfortunate that it has several important defects. For example, some of the figures in the text are bad, and others inaccurate. The sections on treatment—as, for instance, of kala-azar—are inadequate even as a rough guide, and require amplification at the expense of history and pathology. It is necessary to point out that the treatment of paragonomiasis is not identical with that of bilharziasis. The proportion of space allotted to each subject is not always judicious. The classification of flies, mosquitoes, and even rats (to which 15 pages are devoted) is given in full, while that important parasite, *Filaria volvulus*, is entirely neglected. The terms diathermasia (page 49) and phoebism (page 151), which the author has coined for heatstroke and sunstroke, are inappropriate in a book of this nature, and the statement that *Bacillus coli communis* is responsible for "sporadic dysentery" is hardly accurate. The fact that so many workers in the tropics find this volume of the Aid Series useful makes it important that in a future edition these points should be considered.

PRACTICAL TROPICAL SANITATION.

Second edition. By E. P. MINETT, M.D., D.P.H., D.T.M. and H., Lecturer on Hygiene to the University of Hong-Kong; and A. G. M. SEVERN, M.A., M.D., D.P.H., Medical Officer of Health, Hong-Kong. School Notes by Mrs. MINETT, M.D., B.S., D.P.H., Assistant Medical Officer for Schools, Hong-Kong. London: Baillière, Tindall and Cox. 1927. Pp. 180. 5*s*.

THIS small manual is written as a pocket book for sanitary inspectors and others in tropical countries, and fulfils a useful purpose. The arrangement of the subject matter is simple; the manual deals with personal hygiene, water supplies, sewage and refuse disposal, food markets, abattoirs, mosquitoes, tropical diseases, buildings and construction, port sanitary work, disinfection, education regulations, and, finally, schools.

The information given is clear, accurate, and concise, while the illustrations and diagrams are excellent. The book deserves praise as a model of its kind, and is likely to be well received.

TEXT-BOOK OF BIOLOGICAL CHEMISTRY.

By JAMES B. SUMNER, Ph.D., Assistant Professor of Biological Chemistry, Cornell University, Ithaca, New York. New York: The Macmillan Company. 1927. Pp. 283. 15*s*.

THIS book provides a most interesting account of the general principles of biological chemistry. In an introduction the author summarises the aims and methods of the biological chemist, and points out their importance not only in medicine, but in clinical analysis, dietetics, bacteriology, and other fields. Biochemical reactions are explained, and an outline of the most important literature is given for the guidance of the elementary student. The book is divided into seven chapters, of which the first two contain fairly full descriptions of the fats and carbohydrates. Chapter III. summarises the question of acidosis. The proteins are dealt with in the next chapter, which includes accounts of the composition and general properties of these bodies. The tests for proteins are enumerated and described, and an account of the synthesis of polypeptides is given. Vitamins and the energy requirement are then explained, and in Chapter VII. urine constituents and their metabolism are dealt with in some detail. Then follow sections on the blood and respiration, physiological detoxications, enzymes, and the physical chemistry of protoplasm.

This small volume should be of great value to the elementary student. It is not intended as a book of reference, but forms an interesting summary of the principal facts and theories of biological chemistry.

Reports and Analytical Records

LACTREX: KING'S COMPOUND MALTED MILK FOOD.

(GEORGE KING AND CO., LTD., ALBION FOOD MILLS, SYCAMORE-STREET, E.C.1.)

Lactrex claims to be a starch-free food for infants from birth and for invalids. When analysed the following results were obtained:—

Moisture	3·54	per cent.
Ash	4·78	,,
Fat	19·00	,,
Protein	18·40	,,
Cane sugar	8·30	,,
Other carbohydrates including maltose, lactose, dextrin, and dextrose	46·00	,,

Starch was tested for with negative results. The reaction was slightly alkaline. The percentage of full-fatted dried-milk deduced from the fat content of the sample was 73, the balance consisting of malt extract and whey solids. When made up with water in the proportions directed the fat content approximates closely that found in cow's milk.

Lactrex is a well-prepared food and pleasant to the palate. The fat content, freedom from starch, and ready miscibility with water are undoubtedly points in favour of the use of this food for infants.

BUCKFAST TONIC WINE.

(MADE BY BENEDICTINE MONKS AT BUCKFAST ABBEY. SOLE DISTRIBUTING AGENTS: J. CHANDLER AND CO. (BUCKFAST, LTD.), 41–42, PARLIAMENT-STREET, S.W. 1.)

It is claimed that the wine is made from the choicest and finest of natural tonic wines to which are added medicinal ingredients of a health restoring and therapeutic character. It is indicated for the treatment of anæmia, nervous exhaustion, and debility. On analysis the following results were obtained:—

Alcohol by volume	15	per cent.
Equivalent to proof spirit	26	,,
Total acidity as tartaric acid	0·26	,,
Volatile acidity as acetic acid	0·01	,,
Total extract	23·26	,,
Consisting of—		
Invert sugar	21·3	,,
Mineral matter	1·25	,,
Protein	0·34	,,

From these results it will be seen that Buckfast Tonic Wine is of the port type with rather less alcohol and considerably more sugar than is usual. The protein, if calculated to meat extractives, would be equivalent to 0·5 per cent. The wine possesses a good palate and is free from preservatives.

THE LANCET.

LONDON: SATURDAY, AUGUST 6, 1927.

THE BRITISH-AMERICAN NEUROLOGICAL MEETING.

LAST week the American Neurological Association and the Section of Neurology of the Royal Society of Medicine held a joint meeting in London, and the event deserves notice even in these days of world travel and of congress multiplicity. For this was the first occasion on which a British-American gathering of neurologists has taken place, and it becomes us to put on record our appreciation of the compliment our American confrères paid us in coming so far (many of them having travelled long distances before reaching the Atlantic) and with such a comprehensive representation of American neurology, to attend a three-day meeting. From the very beginning, the reception by Sir JAMES and Lady BERRY at the house of the Royal Society of Medicine, a note of cordiality was struck, and as the congress proceeded it deepened into one of mutual regard and of personal good-fellowship. While some of the older neurologists of the United States were missed, they were nevertheless worthily represented by the veteran Dr. CHARLES DANA, to whom was given the honour of delivering the Hughlings Jackson lecture, and who performed his task with distinction. An abstract of this lecture and of the discussions as a whole will be found on a later page. The contributions from the younger members of the American Neurological Association were remarkable for the high general level of knowledge and research which they revealed, and they furnished impressive evidence of the standard of attainment which American neurologists have set themselves. Of the existence of this scientific spirit of inquiry and study the chance visitor to American schools of medicine and to American medical conferences has long been aware, but when one of their medical societies (with limited membership, it is true) comes over to offer its contributions to an audience the major portion of which is English, and when one presentation after another forms a fine addition to neurological theory or practice, the effect is undoubtedly highly impressive. Who knows whether the tide of research will not set westwards more strongly than ever, as a sequel to this boldly conceived and admirably executed idea of showing an assembly of our English neurologists what American neurology is doing?

Naturally, we shall not with false modesty underrate the value of the contributions of the former to this successful joint meeting, the more so as in many instances they were of outstanding merit, and were generously pronounced to be so by our American visitors. The truth is that contact of mind with mind arouses emulation and yet leads to the cultivation of reference, and in this respect the discussions of last week must prove eminently fruitful. Criticisms were friendly and controversies were eschewed, as befitted a meeting of two English-speaking races. At the banquet which was the official close of the conference the toast of "Coöperation in English and American Medicine" was surely honoured not only by outward signs, but by mental resolve on the part of guests and hosts that it should stand for a reality to-day. Possibly one of the greatest delights in a joint gathering of this kind resides in the opportunity it affords of seeing and hearing men whose names have been familiar, through the medium of printed contributions, to neurological doctrine. Many of those visitors who crossed the sea to meet us were known by reputation, and it is a charming experience to come into personal contact with medical confrères animated with the same ideals as ourselves and interested in the same subjects; even if imaginary impressions are corrected the end-result is never a loss. Beyond the manifest significance of these gatherings lies a latent and deeper meaning. It is embodied in the idea that this is the only kind of interracial rivalry a war-sick world can bring itself to tolerate—in the case of medical men, an amicable struggle to attain the end of perfect knowledge of the ills of the flesh and to achieve the consummation of the art of healing. In the realm of medical science racial isolation is more than ever an impossibility. Any steps which are taken from time to time to impress this fact on collective medical consciousness will always be welcome. A natural outcome of the British-American Neurological Congress is the hope, publicly expressed by our visitors, that in two or three years a return meeting may be organised on the other side of the Atlantic. A precedent is established with conspicuous success, and it may find an echo in other similar conferences of English-speaking specialists. This would indeed be the best compliment that could be paid to the organisers of the neurological meeting that has now become a pleasing memory.

MEDICAL OFFICERS AND PUBLIC SCHOOLS.

IN April last a memorandum, with a series of recommendations, was published in the Supplement of the *British Medical Journal* dealing with the conditions under which the work of a medical officer of a public school is carried on, and enumerating the circumstances in which the duties and responsibilities differ from those of the general practitioner. The origin of the memorandum lay in the fact that the Medical Officers of Public Schools Association had sought the assistance of the B.M.A. with a view to secure improved conditions in their employment and remuneration, feeling that their status required definition and that their prospects called for improvement. The memorandum was a very detailed piece of work, as all will see who refer to it,[1] for the paragraphs nearly exhaust the alphabet, and these are followed by 19 recommendations, 13 having reference to the work of the whole-time medical officers of public schools and the remainder dealing with the part-time officers. It can be said that the matter has been looked at from every side in the interests of the doctors.

At the recent Representative Meeting a report with this series of recommendations was introduced for adoption by Dr. J. W. BONE, Chairman of the Medico-Political Committee, who admitted that the Association was leaving its ordinary routine in its proposed action, opening up a whole new class of work; but he urged that this was being done at the instance of representations from the whole-time medical officers of public schools, and in the event it was seen that the Representative Body declared themselves ready to deal with the matter. A preliminary debate took place as to the advisability of any such discussion among the Representatives before an arrangement or approach for a preliminary understanding had been arrived at with the governing bodies and headmasters of public schools, and, moreover, it was evident that

[1] Brit. Med. Jour., April 23rd, p. 149, Sup.

each policy, that of going forward and that of pausing, could be soundly supported. Unless the Association had formulated its views already there could be nothing concrete to put before the governors and the headmasters; but unless the school authorities and headmasters were invited to collaborate from the first they might be unwilling to join in a conference whose terms of reference had never been placed before them. The meeting in the end—and wisely, we think—decided to go into committee, with a view in this way to get the opinion of the Representatives broadly upon certain propositions; after which the whole matter could be taken back to the Council of the Association for the conduct of further negotiations. In committee accordingly Dr. BONE moved the most critical of the recommendations contained in the report—namely, that the whole-time medical officer of a public school should be appointed by, be directly responsible to, and have direct access to, the governing body of the school. The recommendation was carried unanimously, and here at any rate we may surmise that all modern educational bodies will be in accord. To make the man who is to be responsible, with the coöperation of all the members of the teaching staff, for the health of the pupils an integral part of the organisation of the school is only logical if—and this is provided for in the Recommendations—the method of election secures an officer whose training and experience fit him for the post. But there will be many things to be discussed in detail, though already some of the great public schools may be inclining towards a policy which has everything in its favour.

The duties which such an officer would have to discharge—speaking in terms of the public school for boys—are many and different, and call for a display of wisdom in various shapes as he comes into touch with the head-master, the teaching staff—especially the house-master, and the boys. He will be responsible for the examination of the new pupils, and the scrutiny of these before admission should be as well organised and as thorough as any entrance examination in respect of educational standards; in fact the physical tests call for greater care as being more difficult of application. At this point he will have the advantage, if and where needed, of coöperation with the pupil's family doctor, but thereafter he will be solely responsible for the boy's health when at school, and from the point of view of isolation he may be at a disadvantage in his clinical practice which is not shared to-day by many of his colleagues in general practice. He must be prepared to make periodical examinations of resident pupils with as much method and particularity as the teaching staff display in their periodical stock-takings of educational progress; it is at least as important that at a given age a boy should have reached appropriate physical development and be bearing the strain of growth equably, as that he should be in a form with his coevals and be holding his own among them. How to obtain the most trustworthy results of physical examinations will call for a real knowledge of boys and an understanding of the part which games play in the world of school. And while it will be his duty to observe, in the interests of staff and pupils alike, that the general sanitation of the school is good, he will also have to supervise and inspect the dietary, when there may be occasion for the display of genuine tact in his relations with his colleagues on the teaching staff. And when it is added that much of this carefully planned work must be the subject of detailed note-making and written reports, enough has been said on general lines, without going into exact definition of clinical procedure, to show that such an officer should be selected in the most careful manner and on indisputable grounds for his fitness both in character as well as in attainments. He should owe his appointment to central authority to which he should make a regular report; and while thus removed from the risks of mere personal bias he should receive suitable payment for his services. The memorandum of the Association should be circulated to the governing bodies and teaching staffs of the public schools—to a selected group of large institutions in the first place—and their criticism invited. It is clear that all the recommendations will not be acceptable to all the schools, but the main principles should find immediate favour because of their public effect. A basis would thus be obtained upon which fruitful action could take place; for in the words which are the best argument for reform "Something has got to be done."

CANCER OF THE UTERUS.

To refuse to look unwelcome facts in the face even when knowledge may bring relief, is a deeply ingrained habit of the human mind. Its extent and its tragic consequences are illustrated by the plain tale of figures amassed by Dr. JANET LANE-CLAYPON [1] in her survey of the results of treating cancer of the uterus. In 51 per cent. of the women who applied for treatment of cancer of the cervix it was no longer possible to undertake radical operation, and on the average, according to their own statement, these patients had had symptoms for six to nine months before attending hospital. Dr. LANE-CLAYPON points out that as the natural duration of the disease from the onset of symptoms to death in untreated cases is about 21 months, the delay of six to nine months is largely accountable for the high proportion of inoperable cases. To this toll of this avoidable waste must be added many years of life lost by an unknown number of women who never come for treatment.

This is only one of many points brought out by the report. Periodical balancing of the account in all available records is essential for any clear grasp of the practical results of our knowledge and treatment of disease, and it is equally obvious that in this particular case the mere volume of the scattered literature makes this balancing almost impossible for most medical men, particularly, perhaps, for those specialists to whom it is most useful. The Ministry of Health is to be congratulated in taking up this task and in having found in Dr. LANE-CLAYPON a worker able and willing to assimilate the mass and to reproduce the essential information in a form in which it is readily available for the use of the profession. The data are taken from 848 papers derived from 16 different countries, and cover some 80,000 cases of disease. Yet the main facts have been clearly given in 59 pages of text backed by 76 of tables. To summarise such a summary would do the subject little justice and we recommend those who are interested to study the report for themselves. A few of the salient points may, however, be mentioned mainly to indicate its scope. Cancer of the cervix and of the body of the uterus are as far as possible considered separately. In cancer of the cervix the relative advantage—as measured by the survivorship at the end of five years—of treatment by abdo-

[1] Reports on Public Health and Medical Subjects. No. Cancer of the Uterus: A Statistical Inquiry into the Results Treatment, being an Analysis of the Existing Literature. Janet E. Lane-Claypon, M.D., D.Sc. Ministry of Health. 19 3s. 6d.

inal hysterectomy and radiation depends on the nclusion or exclusion of cases judged to be inoperable n application. If these are excluded, abdominal ysterectomy has the advantage with 37·6 per cent. f survivors as against 35·8 per cent. If inoperable ases are included the advantage lies with radiation hich gives a survivorship of 22 per cent. as against 8 per cent. Radiation thus offers an expectation f life of at least five years to 12 per cent. of the ases deemed inoperable. With all forms of treatent early cases show a mortality about half as arge as that of the more advanced borderline cases, nd the improvement shown by the later records of ndividual clinics shows the importance of specialised kill and knowledge. The figures are also analysed rom the point of view of age, marriage, and childearing, and some lend themselves to discussion of solated pathological points of interest. Fewer data re available for cancer of the body of the uterus han for cancer of the cervix. The mean age of ccurrence in this site was eight years later and he mean average duration of symptoms before pplication for treatment was 18 months. Abdominal peration gave more favourable results in this site han in the cervix, but as is already recognised the esults with radiation are here definitely less favourable han those of operation.

Those who recognise the value of this series of tudies and who are themselves engaged in the reatment of cancer may be reminded that systematic ecords and some method of following up cases may ake their skill bear fruit beyond their own practice. On this point we may quote Sir GEORGE NEWMAN n the introduction to the report:

"Unfortunately," he says, "it is difficult to ascerain the exact extent to which radiation is used in England; still more difficult is it to obtain a knowedge of its results, owing to the apparent and natural isinclination of surgeons and radiologists to publish ccounts of series of cases. This in turn is no doubt ue to the absence or incompleteness of clinical ecords and of a system for ascertaining the afteristories of treated patients. Such indications as re available seem to suggest that we are much less dvanced in the treatment of cancer by radium than ertain continental countries, and probably keep ess satisfactory records. If these impressions are onfirmed, by the acquisition of further evidence, he position is one for some disquietude and for a erious and sustained effort to remedy the defects."

Apart from any possible improvement in treatent an immediate duty seems to be to drive home o the general public the danger of delay. In the words of FRANCIS BACON: "There is surely no greater isdom than well to time the beginnings and onsets f things. . . . Nay, it were better to meet some angers halfway, though they come nothing near, han to keep too long a watch upon their approaches."

NEED FOR MORE DENTAL CLINICS.—Prof. W. H. ilmour, of the University of Liverpool, in his presidential ddress at the annual meeting of the British Dental Assoiation on July 29th, deplored the fact that owing to the umbers requiring treatment in the school dental clinics nd the comparative scarcity of dental officers, millions f teeth were lost because they were not treated at the nception of caries. Additional school dental clinics were eing set up all over the country and there were 289 wholeme and 355 part-time dentists now employed in this ork. The service was equivalent to that of 354 wholeme officers, but to provide one dentist for every 5000 hildren in elementary schools the number needed would e 1600. For Liverpool's 134,570 elementary schoolhildren there were only five full-time dentists. The ideal ounded costly, but it would be nothing compared with the enefits which would accrue from a general contentment if ood health were established and pain eliminated.

Annotations.

"Ne quid nimis."

NOTIFICATION OF INDUSTRIAL POISONING.

THE Chief Inspector of Factories has issued a circular (Form 304) calling the attention of medical practitioners to their obligation to notify him of industrial poisoning contracted in a factory or workshop. The list of notifiable conditions now includes poisoning by lead, phosphorus, arsenic, mercury, carbon bisulphide and aniline, chronic benzene poisoning, anthrax, toxic jaundice, epitheliomatous or chrome ulceration. The practitioner is also required to notify lead poisoning contracted during the painting of a building whether or not that building is a factory or workshop. Notification is to be made on the form provided, which includes a twofold expression of opinion (1) that the patient is the subject of one or other of the diseases or forms of poisoning enumerated, and (2) that the practitioner believes the poisoning to have been contracted in a factory or workshop or in connexion with the painting of a building. Doubt may arise as to the actual employment of a plumber, but, as he generally spends some portion of his time dealing with lead material in a factory or workshop occupied by his employer, notification should be made. Recurring attacks in the same subject require re-notification if the affected person has continued at work, although not in the case of persons with chronic poisoning who have ceased work. The term aniline poisoning is intended to include the hæmolytic action of red blood cells to which the term anilism has been given. Chronic benzene poisoning takes the form of aplastic anæmia when small quantities of benzene are inhaled over a prolonged period. Notification of poisoning contracted otherwise than under the circumstances specified is not demanded, the reason given being that it would be incomplete and therefore useless for statistical purposes. Forms of notification will be supplied on application to the Chief Inspector of Factories, Home Office, London, S.W. 1. A fee of 2*s*. 6*d*. is payable for any such notification.

THE ROSS INSTITUTE.

IN the first annual report of the Ross Institute, issued since its opening by H.R.H. the Prince of Wales on July 15th, 1926, there is a record of some of the Empire-wide antimalarial work which is at present in progress. The visit of Sir Ronald Ross to Ceylon [1] has now been followed by one undertaken at the invitation of the Indian Tea Association. By the proverbial hospitality of the East, the tour was enlarged to include Malaya, with its pioneer work by Sir Malcolm Watson, before reaching Calcutta and Assam by way of Burmah.

Upon this visit Sir Ronald Ross has issued a separate report which, in clear language, places his conclusions at the disposal of the Institute which made his tour possible. The report lays emphasis upon aspects of the malaria problem which are perhaps too little appreciated even by medical men. A good example lies in the difficulty which the villainous plasmodia normally experience in reaching a fresh host; if the statement runs on the lines of the well-known nursery legend, it is none the less an actuality. Only a fraction of the many anopheline species transmits malaria; only a fraction of the eggs of potential transmitters reaches adult maturity; only a fraction of these adults bites malaria cases; only a fraction of these malaria cases is infective; only a fraction of the infective cases infects mosquitoes; only a fraction of the infected anophelines survives to become potentially infective for man; only a fraction of men bitten by infective mosquitoes becomes infected. The odds, then, against plasmodia maturing in fresh hosts are very

[1] THE LANCET, 1923, ii., 962.

heavy, and malaria can flourish only when anopheles and plasmodia abound—a sustaining thought for the sanitarian who finds that he has failed to exterminate anopheles or plasmodia. He knows that if he can sufficiently lower the numbers of one or both, there will come a point, as is the case now in England, when malaria will cease to be the industrial menace which it still is in the tropics.

When balancing the financial gain of efficient labour against the financial expenditure in anti-malarial effort, Sir Ronald sums up the matter thus: "Both malaria and malaria control cost money; but the former costs health and even life itself in addition," a pregnant sentence which indeed contains the entire justification for all sanitary services in all countries. His suggestion that planters would find the issue, with obligatory use, of mosquito nets to their coolies a "profitable charity," and his comment upon the effect of "congregate sleeping" on the rapid spread of infection and reinfection, and upon the value of the building of proper coolie lines, all add weight to the finding of the Near East Malaria Commission of the League of Nations—that malaria is a house infection, and that the proper place to attack the mosquitoes concerned is in the home itself. Of localities visited, pride of place is given to Singapore, on the ground that in no other city in the British Empire has, it is believed, malaria control so progressed or been so enthusiastically carried out, every step being preceded, as is unhappily not always the case, by entomological and engineering surveys. In Calcutta, Sir Ronald Ross witnessed the unveiling, by Lord Lytton, the Governor of Bengal, of the handsome Gate of Commemoration which leads to the little laboratory, situated in the spacious grounds of the Presidency General Hospital, where he worked in 1898. In Assam much keen antimalarial work is being done in certain tea gardens, little in others. The main malarial need of the Province, it is held, is not so much the will to move, as is the case in Burmah, but an organisation on the lines of Malaya. This would be effected by the institution of local Malaria Control Boards, which could exercise persuasion or compulsion on those who bring to nought their neighbours' expensive antimalarial work. A final word deals with the 1987 Indian antimalarial societies which already exist, apparently in Bengal only, under the skilled and enthusiastic initiation and direction of Rai Bahadur Dr. Copal C. Chatterjee. They are of primary importance, not only for what they have done for the villages in which they have been established, but for the evidence which they offer of the growth of the spirit of self-help which it is a main function of the British administration in India to foster.

Sir Ronald Ross has just been awarded the gold medal of the African Society for the best work done on behalf of the African continent. It is not given to many to experience, in their lifetime, even the initiation of a permanent memorial to their life-work other than the work itself. Sir Ronald Ross is happy in this, and it would be most fitting that he should see the Ross Institute set, as it is not at present set, upon an abiding basis.

RECTAL ETHER ANALGESIA IN LABOUR.

IN a paper read before the last annual meeting of the American Association of Obstetricians, Gynæcologists, and Abdominal Surgeons, Dr. J. A. Harrar[1] stated that the Gwathmey method of producing analgesia in labour had been used at the New York Lying-in Hospital in 5800 cases during the last three years with very satisfactory results. The drugs required were morphine sulphate, magnesium sulphate, quinine, and ether. Morphia gr. ¼ was given hypodermically with 2 c.cm. of a 50 per cent. solution of magnesium sulphate to prolong its action. Half the quantity of ether required for surgical anæsthesia (rectal administration) was dissolved in 4 oz. of oil with gr. 20 of quinine alkaloid, and was instilled into the rectum as a retention enema one to four hours after the morphia and magnesium sulphate had been given. When the effect of the first instillation had worn off and the patient again complained of pain which was usually in two or three hours, a second or even a third rectal instillation of ether might be given at intervals of three hours or more. In 85 per cent. of the cases pain was greatly relieved. There was no prolongation of the perineal stage or increase in the number of forceps deliveries. The only contra-indication to the procedure was uterine inertia and the only restriction was not to start too soon. The patient should be in active labour with pains every four or five minutes, and in a primipara the cervix should have attained a dilatation of two or more finger-tips. Dr. Harrar claimed that the applicability of this method was much greater than that of scopolamine amnesia, as it could be used safely and effectively by the practitioner in confinements at home and did not require the services of a trained anæsthestist.

[1] American Journal of Obstetrics and Gynecology, April, 1927.

TUBERCULOSIS AMONG NURSES.

A FEW years ago Dr. Olaf Scheel, chief of one of the divisions of the Ullevaal communal hospital in Oslo, drew attention to the serious frequency with which nurses, especially when on probation, contracted tuberculosis. Was this high tuberculosis rate, he asked, the result of massive infection of persons who, coming from the country, had acquired no immunity to tuberculosis, who were, in other words, Pirquet-negative; or did the strenuous life of the probationer make some old tuberculous focus flare up? Or were there other factors at work? He decided to carry out Pirquet tests systematically, and the very interesting and, to a certain extent, unexpected results of these tests are published in the June number of *Norsk Magazin for Laegevidenskaben*, by Dr. Heimbeck. From Jan. 1st, 1924, every nurse was tested with concentrated old tuberculin when starting work, and the Pirquet test was repeated from time to time on those whose reaction was negative. Of the 397 probationers thus examined 208 gave a negative, 189 a positive reaction. A classification of the nurses according as they came from (*a*) the country, (*b*) country towns, and (*c*) large towns, showed that, of the 132 in the first category 82 were Pirquet-negative; of the 116 in the second category 60 were Pirquet-negative, and of the 148 in the third category 66 were Pirquet-negative. After discussing possible explanations of this high proportion of negative reactions in persons between the ages of 20 and 30 (extraordinarily high for the town-dwellers) Dr. Heimbeck refers to two other recent Norwegian series of Pirquet tests in young adults, in both of which about half the number of persons examined were found to be Pirquet negative. The subsequent fate of the nurses, classified according as they were Pirquet-negative or positive, was more instructive. Since January, 1924, as many as 43 developed signs of tuberculosis (6 cases of pulmonary disease, 16 of pleurisy, 3 of tuberculosis of the bones and glands, and 18 of erythema nodosum), and 40 of them were Pirquet-negative when they entered hospital as probationers. All the 18 nurses suffering from erythema nodosum gave a markedly positive Pirquet reaction after the skin eruption had appeared. Among the 51 nurses who were Pirquet-negative in 1924 there was only one of those still nursing in the hospital who remained so; the rest had become Pirquet-positive. Of the 72 Pirquet-negative nurses belonging to the probationers of 1925 two remained Pirquet-negative. Of the 62 Pirquet-negatives of 1926 only 18 were so still in 1927. Having come to the conclusion that a negative Pirquet reaction indicated susceptibility to tuberculosis, and a positive reaction the reverse, Dr. Heimbeck argued that if the Pirquet-negatives could be converted to Pirquet-positives by a mild infection, such as that induced by inoculation with Calmette's B.C.G. vaccine, a certain degree of immunity to tuberculosis might be acquired. Instead of giving the vaccine by the mouth, as recommended by Calmette in the case of infants, he

gave it by subcutaneous injection, a dose of 0·05 mg. repeated in some cases after a week's interval), being found after some preliminary tests to be the most suitable. The Pirquet reactions of these nurses became positive. But it remains to be seen whether they have been effectively immunised against tuberculosis or not.

THE RETIREMENT OF MR. F. G. HALLETT.

IT was announced at the Comitia of the Royal College of Physicians of London, held on Thursday, July 28th, that Mr. F. G. Hallett had expressed a desire to retire in December next from the post of Secretary to the English Conjoint Examining Board. Mr. Hallett joined the office staff of the Royal College of Surgeons of England in 1877 and became assistant secretary to the College five years later. In 1886 he was appointed secretary to the newly constituted Conjoint Board and has completed, therefore, 50 years' service at the College and with the Board. We are glad to know that recognition of this long and arduous service is to be reflected in the arrangements made for pension, but neither capital sum nor annual life payments can really express the debt which the medical profession owes to Hallett's long and wise labours. He devised arrangements for the examination conducted by the Board which were equally directed to the advantage of examiner and examinee, and made the scheme of the Board an example, in principle and detail, to all educational authorities having the duty to set up qualifying tests of medical knowledge. Only those who have come into personal touch with him can be aware of the amount of personal trouble as well as organising power expended by Hallett in the conduct of the examinational routine of the Conjoint Board; he will take with him into retirement a wide wish that he should live long to enjoy leisure.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM.

IN a paper by Mr. A. E. Iles [1] the diminution of the number of notified cases of ophthalmia neonatorum in Bristol from 15·7 per 1000 births in 1922 to 8·3 in 1925 is attributed to three causes: (1) training and registration of midwives; (2) increased use of Crédé's method of prophylaxis; and (3) compulsory notification, leading to early treatment. The figures may be compared with those of London where (under compulsory notification) the incidence increased during the four years from 7·75 per 1000 births in 1914 to 10·37 per 1000 in 1919; of Leeds, where the proportion in 1919 was 13 per 1000, and of Glasgow, when in 1913 the ordinary definition of ophthalmia neonatorum was extended to include any inflammation of the eyes accompanied by discharges occurring during the first 14 days of life, with the result that the rate of disease was raised at once from 9·6 to 12·6 per 1000 births.[2] This last fact points to a possible fallacy underlying some of the foregoing figures. In the post-war years in Glasgow, according to Dr. Freeland Fergus's computation, the incidence of gonococcal cases fell from 10·3 per 1000 births in 1919 to 2·9 in 1924, a very remarkable decrease, but one which there is reason to believe is not confined to Glasgow. The same tendency appears in America. From statistics of the disease in Newark, a city of some 450,000 inhabitants, Dr. Julius Levy concludes that there was an increase in ophthalmia in the three years following the war, and that there has been a very marked and rapid diminution in the number of cases of ophthalmia in the last three years.[3] It seems highly desirable that a systematic comparison of the incidence of the disease in different cities in recent years under parallel conditions of notification (and either all including or all excluding cases not due to the gonococcus) should be undertaken. So far as we are aware this has not been done. With regard to prophylaxis, several writers have pointed out that the routine use of silver nitrate drops in a concentration of 2 per cent., as originally recommended by Crédé, is followed in a considerable proportion of cases by an undesirable reaction, and it is now generally recommended that the strength used for prophylactic purposes should be 1 and not 2 per cent. Mr. Iles recommends a 1 per cent. solution of mercurochrome, a compound of mercury and fluorescine, which he believes to be safer than silver nitrate, as it hardly ever gives rise to reaction.

[1] Bristol Medico-Chirurgical Journal, Summer, 1927.
[2] Trans. Oph. Society, 1920, Discussion on Ophthalmia Neonatorum.
[3] American Health Congress, Atlantic City, New Jersey, May, 1926.

THE FOOD OF THE JAPANESE.

IT is interesting to study the food problems of a practically homogeneous race which is changing from an agricultural to an industrial character. A great deal of work has been done by the medical staff of the Japanese Army on the dietaries adapted to their countrymen when doing light, moderate, and heavy work, and recently Prof. Shozo Toda, of the Kyoto University, has discussed in the *Japan Medical World* the actual consumption of food in Japan. Japan is one of those fortunate countries which produce nearly all the food they need. Some rice, beans, sugar, eggs, and wheat flour are imported but very little else, the total excess of food imports amounting, it is believed, only to about 11 per cent. of the nation's requirements. It is calculated by Prof. Toda that the mixed population of Japan, 56 million in all, requires the same amount of food as 43 million adults. After careful inquiry of rural and urban government authorities he has corrected the statistics of food production and consumption, which would appear, it may be said, very greatly to underestimate the production of vegetables other than cereals and fruits. The kitchen utilisation of this corrected food consumption yields figures which agree very closely with Colonel Koidzumi's results on actual feeding experiments alluded to above. The following table shows this:—

Daily Consumption of Food in Japan Expressed in Grammes (Percentage of Total in Parentheses).

	Statistical.	Estimated actual.	Army metabolism experiments.
Protein ..	98 (15) ..	120 (15) ..	95 (14)
Fat ..	16 (5) ..	20 (5) ..	19 (6)
Carbohydrate ..	570 (80) ..	670 (80) ..	545 (80)
Calorie value ..	..	2900 ..	2800

These values when compared with Voit's scale show a marked deficiency of fat, even when allowance is made for the relative weights, 70 kg. and 50 kg., of the average German and Japanese adult men. The ratio of physiological demands of food calories of the European and Japanese are 100 : 85, based on weights and body surfaces; and on this basis the Japanese eats more than the European, this being mainly due to the large proportion of rice consumed in Japan. This cereal appears to be very digestible in all respects, and although poor in protein and very poor in fat, especially meets the taste of the Japanese. The protein consumed by the European is largely derived from land animals, whilst the Japanese relies mainly on fish, in so far, that is, as he consumes animal food. Although the consumption of fish is going up, "the modern urban people in Japan are inclined to take a simple food of polished rice with some subsidiary diet. . . . This monotony of dietary produces malnutrition. . . . Moreover, it seems to be a chief cause of the increase of beriberi." The growth of population has been approximately proportional to the production of rice. Disease or a higher rate of mortality does not seem to follow a poor rice year but crime does. The present position of Japan is not favourable to cattle raising on a large scale, but larger catches of fish might easily be made and something done to use a greater proportion of the total catch for food and less for manure. The problems of a population which has so rapidly altered its habits must in the nature of things be difficult.

ISAAC NEWTON: A MEMORIAL VOLUME.

IN this year falls the bi-centenary of Newton's death; and in January, 1926, the council of the Mathematical Association suggested that the occasion should be commemorated by a special number of the *Mathematical Gazette*. Finding, however, that the matter would far transcend in quantity the limits of a single number of the *Gazette*, the council decided to issue the volume as an independent book.[1] Its contents, as might be expected, are for the most part essays on abstruse mathematical subjects, written by eminent mathematicians and chemical physicists, and are considerably beyond the understanding of the general reader; but some of the papers deal with subjects which are not only of interest to experts but can also be enjoyed by any one who has had some training in the physical sciences. For instance, the second paper, by Prof. H. E. Armstrong, on the Forms of Carbon and Chemical Affinity, should be read together with Sir William Bragg's two charming books, Concerning the Nature of Things, and Old Trades and New Science. Newton was an enthusiastic chemist, and was also deeply interested in optics and the phenomena of colour. At first sight it would seem that carbon and colour have nothing to do with each other, but anyone who reads Prof. Armstrong's paper will find that they have, at least in so far as substantive colour goes, for in Prof. Armstrong's words, "colour appears to be the outcome of an effect exercised at absorbing centres of an ethenoid character." Prof. A. R. Forsyth contributes a paper upon Newton's Problem of the Solid of Least Resistance. The problem, as Newton recognised, has direct bearing upon the forms of ships; Newton's postulates have not, however, stood the test of modern research, although they led to Froude's experiments, begun about 1870. For the general reader the most interesting paper is that contributed by Prof. D. E. Smith, consisting of two unpublished documents by Sir Isaac Newton; these are a notebook written when he was about 17, and a proposal for a commission to prosecute coiners and counterfeiters, written when he was Master of the Mint, about 1699. The documents are in Mr. Pierpoint Morgan's library. The notebook contains sundry recipes, including some which are medical. Other papers deal with Newton and his homeland, by Mr. J. A. Holden, M.A., master of the King's School, Grantham; and Trinity College in the time of Newton, by Prof. G. N. Watson. The book is excellently illustrated, and altogether is a compilation worthy of its subject.

ULTRA-VIOLET RADIATION AND RESISTANCE TO INFECTION.

THE curative effects of radiation in rickets and surgical tuberculosis, the well-known bactericidal action of ultra-violet rays, and perhaps an instinctive association of sunlight with good health, have led to a widespread assumption that man's resistance to many if not all forms of disease may be increased by actinotherapy. In a clinical study of one aspect of this hypothesis Dr. Claire M. Hill and Dr. Janet H. Clark have tested the possibility of increasing the natural resistance of rats to pneumococcal infection. In the *American Journal of Hygiene* (July, 1927) they give full details of a thorough investigation of this problem, together with a short survey of the other clinical and experimental work which has a direct bearing on it. Considering the difficulty of estimating and expressing ultra-violet dosage and the variety of infections studied it is not surprising that they have found the available data contradictory. Certain sequelæ of ultra-violet radiation appear to be definitely established, such as the leucocytosis with relative increase in the lymphocytes, an increase in the number of blood-platelets, and a transient increase in the bactericidal power of the blood as tested on certai cocci by the slide-cell method. These changes in th blood seem to be compatible with an increase resistance to infection, but they cannot be regarde as proof of such an effect. Against the belief tha ultra-violet rays have any such beneficial action is th report of L. H. Barenberg, I. Friedman, and W. Green who are quoted as having tested prophylactic radiatio with the mercury-vapour lamp on a large number c children in an institution during the winter month Daily radiation failed to reduce the incidence of th usual febrile and respiratory infections, from which th irradiated children suffered rather more than th control group. The experiments of Dr. Hill and D Clark were designed to test the possibility of increasin resistance to pneumococci of Group I. in a colony c inbred albino rats under varied but rigidly controlle conditions. It was found that small doses of ultra violet rays did not affect the rate of growth of the rat but large doses resulting in severe burns were associate with relatively slow growth. The only constan change in the blood was an increase in the blooc platelets, but this could not be correlated wit increased resistance to infection. Daily irradiation f two or three weeks seemed to give rise to a slight increased resistance to subsequent infection, bu irradiation after infection was without demonstrab effect. They conclude that in the present state of o knowledge there is little justification for the use ultra-violet rays as a general therapeutic agent infectious diseases, and that there is very little suppo for the belief that actinotherapy can increase t resistance of normal individuals to infection.

[1] Isaac Newton, 1642–1727. A Memorial Volume edited for the Mathematical Association by W. J. Greenstreet. London: G. Bell and Son, Ltd. 1927. Pp. 180. 10*s*. 6*d*.

CONGRESS ON OCCUPATIONAL DISEASES.

THE Permanent International Committee on Occ pational Diseases having decided to abstain from t congress called by Hungary in 1928 has just instruct its members of French nationality to organise the Four International Session which will take place at Lyo from April 3rd–6th, 1929. The questions on the agen are as follows: 1. Silicosis (three reports: ætiolog clinics, and legislation); a general report dealing wi forms of pneumoconiosis. 2. Cataract of occupatio origin (two reports: ætiology and clinics). 3. End crine system and forms of poisoning (it is intended furnish under this heading a single report to e entrusted to three experts). 4. Communicatio relating to results of inquiries so far unpublish If it is found advisable to include another question the agenda the subject chosen will be the problem occupational disease statistics.

Prof. Etienne Martin, of the Institute of Le Medicine of Lyons, in collaboration with Prof. Agas Lafont and Prof. Kohn-Abrest, of Paris, with approval of the executive, will designate the expe selected to present reports on the subjects before Session. Requests for all further information sho be addressed to Prof. Etienne Martin, or to Secretariat of the Committee, Hygiene Serv International Labour Office, Geneva.

THE death is reported of Dr. Rudolph Magn professor of pharmacology in the University Utrecht.

Dr. Robert Howden has resigned the chair anatomy in Durham University, which he has h for a period of 38 years.

Sir Hugh Anderson, Master of Gonville and C College, Cambridge, and Prof. T. R. Elliott, Dire of the Medical Unit, University College Hospi London, have been appointed members of the Med Research Council to fill the vacancies caused by retirement of Sir Frederick Andrewes and Sir Cuth Wallace.

[1] Jour. Amer. Med. Assoc., 1926, lxxxvii., 1114.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXV.—THE TREATMENT OF DIPHTHERIA.

EVEN after our 30 years' experience in the treatment of diphtheria by antitoxin it still seems essential to insist on the necessity for immediate treatment. The chances of recovery diminish steadily with the lapse of time between the onset of the disease and the administration of serum, and valuable hours may be lost in waiting for a bacteriologist's report. Generally speaking if a case is suspicious enough to be swabbed it is suspicious enough to be given a dose of antitoxin, and it is even sound practice to give antitoxin in the face of a negative culture where the clinical appearance suggests diphtheria. The only objection to antitoxin is the occasional occurrence of serum sickness, and if a concentrated serum is used this risk is greatly reduced. The belief that diphtheria antitoxin plays a part in the production of the paralytic sequelæ of the disease is without foundation, whilst the occurrence of "antitoxin" abscesses merely indicates faulty technique in the injection.

Isolation.—A patient treated at home should be isolated in a well-ventilated room, and the services of a trained fever nurse engaged. Small pieces of clean rag should be provided for wiping up discharges and these should be promptly burnt after use. The patient's crockery and spoons should be specially marked and boiled after each meal. Isolation may be terminated when two or three consecutive negative cultures obtained at a few days' interval have been reported. Before returning the room to its normal use it should be very thoroughly "spring" cleaned and the patient's personal linen and bedding disinfected by steam. Toys and books should be burnt.

Serum Dosage.

On this point there are two principal schools of thought, one believing in the exhibition of massive doses up to 150,000 or more units of antitoxin, whilst others who find wide support in this country and the United States hold that amounts up to 50,000 units are sufficient to bring about all the benefits to be expected from serum. The following system of dosage is based on the practice of the latter school.

In estimating the dose the factors to be taken into account are the day of disease, the extent and severity of the local lesion, and the amount of toxæmia as indicated by pallor, prostration, cervical adenopathy, and albuminuria. Age or body-weight need not be specially considered since any modification that one would be inclined to make for a small child is counter-balanced by the greater susceptibility at that age. Mild cases seen early with slight patching on one or both tonsils should be given from 2000 to 6000 units of antitoxin. Cases presenting a moderate amount of toxæmia and patching on both tonsils will require from 10,000 to 16,000 units of antitoxin. Severe cases with extensive membrane involving the fauces, uvula, soft palate, and posterior pharyngeal wall, accompanied by profuse nasal discharge, fœtor and profound toxæmia should be given 30,000 or 40,000 units at once. These doses apply to cases coming under treatment on the second or third day; cases presenting corresponding lesions after this period require an additional 2000 to 10,000 units according to their severity. In the mild and moderate types an increase of dosage is indicated if a nasal discharge is present, or if the faucial pillars, posterior pharyngeal wall, or uvula are involved.

The ideal method is to give an adequate single dose at the outset of the treatment, but even the most experienced do not always find this possible, and the throat and general condition should be carefully re-examined at the end of 12 or 24 hours; a spread of the membrane, or the failure of a nasal discharge to clear up indicate repetition of the dose.

The serum may be injected subcutaneously, intramuscularly, or intravenously, the route now most extensively employed being the intramuscular, and the site the middle of the outer aspect of the thigh. In severe or late cases intravenous injection of at least part of the dose is preferable, but in children this is frequently difficult, and it may be wise to adhere to the easier intramuscular method. Before intravenous injection the serum should be warmed by standing the phials in a vessel of warm water.

Serum Sickness.—Anaphylaxis.

After the administration of serum from 10 to 50 per cent. of patients, according to whether concentrated or unconcentrated serum is used, show one or other of the manifestations of serum sickness. The commonest, and frequently the only one of these is the appearance of a rash which comes on from about the fifth to the twelfth days after injection. It may be urticarial, erythematous, morbilliform, or scarlatiniform in appearance, the first being the most usual and is generally intensely itchy, a soothing application of calamine lotion being frequently required. Arthritis is less common and may be present with the rash or alone; pain is the outstanding feature, little or no swelling being visible. Localised œdema of the eyelids, upper lip, genitalia, or hands and feet may occur, also some degree of pyrexia.

Anaphylaxis happens so rarely that it should never be considered a contraindication to serum administration. However, persons who have been previously sensitised by injections of horse serum, or are subject to asthma, should be desensitised by injecting subcutaneously 0·5 c.cm. of serum and following that up in not less than four hours with the therapeutic dose. If a patient has to receive antitoxin more than ten days after a previous injection the same procedure should be followed.

General Management.

Until all danger from circulatory failure is past, the patient should be rigorously prohibited from sitting up in bed, only one soft pillow being allowed at first, and every possible strain being avoided. The bowels should be kept open by enemata. The diet should be fluid at first, but liberal when the febrile period is over. In moderate cases after two or three weeks a second pillow may usually be given, then a third, then sitting up may be permitted, until finally the patient is allowed up. In severe cases, however, or in those whose pulse is unsatisfactory, these advances require to be made with more caution, the patient being confined to bed for six to eight weeks. After further medical supervision is unnecessary a month's holiday is desirable. Patients who have suffered from circulatory disturbances should avoid hard exercise for a year or more.

Local treatment of the membranous deposit is superfluous except in severe cases or where there is superadded secondary infection, when gentle douching with warm water may be carried out.

Heart Failure.

The patient should be placed in a completely recumbent position on the appearance of pulse irregularities in rhythm or rate. If there is pallor or faintness the foot of the bed should be raised on blocks, and fluid nourishment given frequently in small amounts; hypodermic injections of strychnine or camphor in oil may be called for. Adrenalin has gained some reputation in this condition; its value or indeed that of any drug, is problematical, but they should always be tried. In sudden collapse, or when vomiting comes on, all feeding by the mouth should be stopped and rectal salines given, as well as hypodermic stimulation every two or three hours. If pain is present, hot fomentations should be applied to chest and abdomen. In extreme cases, when restlessness is a feature, a carefully estimated injection of morphine may give the patient a spell of quietness, and postpone the almost inevitably fatal issue. Thirst, often a distressing feature when fluids by the mouth are cut off, may be partly alleviated by rectal salines when these are retained; the lips and mouth should be moistened frequently with iced or acidulated water.

Post-diphtheritic Pareses.

These tend to spontaneous recovery. The patient must be kept at complete rest and strychnine given by the mouth. The tendency to nasal regurgitation

in palatal paresis can usually be overcome by careful feeding with semi-solids. In pharyngeal paresis the patient requires to be fed by the nasal tube and the foot of the bed raised so that saliva may drain from the mouth. The recovering patient should be carefully fed at first with thickened fluids.

Laryngeal Diphtheria.

Laryngeal diphtheria should be treated by an immediate dose of antitoxin of 12,000 to 20,000 units; if severe faucial or nasopharyngeal lesions are present in addition 30,000 to 40,000 units should be given. A croup kettle and a half-tent should be arranged so that the air in the neighbourhood of the head is kept moist and warm by a current of steam. Hot fomentations should be applied to the neck frequently. In hospital it is usual to postpone interference as long as possible, but in general practice this may be dangerous. Rapidly recurring spasms of dyspnœa, great restlessness, cyanosis, and a fast flickering pulse are obvious indications, but there are many lesser gradations of the obstructive syndrome whose gravity has to be estimated. It is better to operate early than too late, and when the doctor cannot be within easy call it is sound practice to operate.

Tracheotomy.—Intubation is essentially a hospital procedure, and the operation to be recommended for the practitioner is high tracheotomy. A detailed account of this is not possible here, but some of the important points may be stressed.

An anæsthetic is not necessary, but the patient must be firmly held, especially the head, which must not be allowed to move from the vertical. The anatomical landmarks must be carefully selected, the midpoint of the lower border of the cricoid never being lost sight of. The incision should be *absolutely* in the midline. Bleeding need not cause alarm, and steady swabbing must be carried on to prevent the field of operation from being obscured. When the trachea is opened there is no urgency about inserting the tube until the first spasm of coughing has cleared away mucus, blood, and fragments of membrane. In the after-treatment the main consideration is to get the tube out, and attempts to this end should be made about the third day after operation. As a rule the patient can be fed quite well by means of a feeder or a spoon and very rarely is the nasal tube required.

Diphtheria in other Situations.

Nasal diphtheria with membrane formation requires from 6000 to 8000 units of antitoxin, and cases in which there is a watery or blood-stained nasal discharge containing *B. diphtheriæ* will usually yield to a small dose of 2000 units. Conjunctival diphtheria should be treated with 6000 or 8000 units, and in diphtheria complicating operation wounds or occurring as a secondary infection of skin eruptions it may be necessary to give large initial doses up to 20,000 or 30,000 units.

Prophylaxis.

Passive immunisation can be conferred by the subcutaneous injection of 500 units of antitoxin. The protection lasts about three weeks and is immediate.

Active immunisation can generally be secured by three doses each of 1 c.cm. of toxin-antitoxin mixture subcutaneously. The procedure should be delayed till after the ninth month of life; in children under school age no preliminary Schick test is necessary. Up to puberty a preliminary Schick test without a control should be performed, but after that age, and in retesting after immunisation, all tests should be controlled by the heated inactivated toxin. Protection takes some months to develop; the lapse of six or twelve months will be found a convenient interval before retesting. Those still susceptible as revealed by the Schick test should receive a further course of toxin-antitoxin injections.

Carriers.

Local applications have little effect, and the best prospect of terminating the carrier state is held out by investigating the nasopharynx and correcting any deformity or pathological condition. Tonsillectomy and removal of adenoids are often useful.

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Special Articles.

A FURTHER VISIT TO GERMAN SPAS

A VISIT to some of the West German spas w reported in THE LANCET of June 12th, 1926. Th spring an opportunity was given to our representati to visit nine other spas, and so to complete his accou of German inland watering places.

AACHEN.

Aix-la-Chapelle, to use the more familiar nam is situated on the main line from Brussels to Cologn just on the German side of the frontier betwe Belgium and German. It is an industrial town 150,000 inhabitants, chiefly engaged in maki needles and in the woollen industry. At its weste end is the spa, at the foot of well-wooded hills, a as the prevailing winds are from the west the smo from the town and its factories rarely approach the area occupied by the Kurhaus with its baths a wells. Indeed, unless one climbs the wooded slop which overlook the town, the neighbourhood of t industrial area is forgotten. The hot sulph springs issue at temperatures varying from 162° downwards; the hottest, of course, being cool before use. In addition to sulphuretted hydrog the waters contain sodium chloride, sodium bic bonate, and sodium sulphate, being thus well suit for the treatment of rheumatism and gout. He is found an excellent form of douche massage pecul to the place. The patient enters a deep immersi bath, with steps on either side, in company with t bath attendant. The latter, seated facing the patie applies massage and under-current douching for so 15 minutes, during which the bath is gradua emptied. The manipulations over, the attend leaves the bath, which is gradually refilled, and t patient lies quietly in the warm water for the p scribed period. He is then dried with warm tow and sent to rest, or, if he be physically fit, is allow to swim or wallow in a commodious bath of runni warm sulphur water.

Until the introduction of intravenous metho Aix-la-Chapelle was justly famed for the treatment f syphilis and parasyphilitic ailments by the combi use of mercury inunction and sulphur waters. certain number of these patients are still treated he but most of those coming for the cure are suffer from rheumatism, gout, skin diseases, torpid liv or intestinal catarrh. The principal hotel adjoin the baths and Kurhaus is well warmed and m comfortable in every way. Mention should made of the Landesbad, a hospital of 365 beds, the treatment of the insured classes, with well-staf laboratories for all pathological and biochem investigations.

KREUZNACH.

This spa lies in the valley of the River Nahe quarter of an hour's journey from Bingen, where Nahe flows into the Rhine. Here are large saltwo and radio-active brine baths containing lith and iodine are the most important features of treatment. The strength of the baths is varied the addition of mother-lye from the saltworks o concentrated radium emanation water. Disease women, rheumatism, and "scrofula" are said to de special benefit. Scrofula would appear to be a tuberculous condition in children characterised glandular enlargement. There are several l children's homes, both for treatment and conva cence, but although several homes were visite typical case of scrofula could not be demonstra The children appeared well-fed and happy, and bracing climate and good feeding should do m to reinforce the action of the local radium emana in overcoming the after-effects of malnutrition early childhood from which many German chil suffered during the war and the subsequent infla

period. The Kurhaus and Palast Hotel was the headquarters of the German General Staff in 1917 and 1918. The baths contain inhalation rooms filled with vapourised saline water for the treatment of catarrh of the lungs, nose, and throat, and it was of passing interest to be told that in this foggy atmosphere the ex-Kaiser sought relief. The Palast Hotel has once more assumed its normal function, and is a most comfortable place. The hotel adjoining is still the headquarters of the French occupying this area. Kreuznach has some 27,000 inhabitants, and is the centre of the Nahe wine industry.

BAD MÜNSTER AM STEIN.

This lies in the Nahe valley, a few miles above Kreuznach, in the concavity formed by a wide bend in the river, on the opposite bank of which the Rheingrafenstein rises sheer to a height of 300 metres. The waters are radio-active salines, and the bath-houses, when rebuilt in 1911, were so constructed as to retain as much as possible of the natural radium emanation. The lawns in front of the Kurhaus are bounded on two sides by high Gradier-Werke, being stacks of brushwood used for concentrating the salines by evaporation. Consequently, the patients spend a large part of their time in an atmosphere impregnated with moisture and salt, and even in the height of the summer the gardens are cool and pleasant. Bad Münster is little more than a large village, but it has modern sanitation and lighting, and is a real beauty spot. Shaded walks in the valleys or stiff climbs in the hills afford choice in plenty. The diseases mainly treated are gout, rheumatism, scrofula, and female ailments.

BAD MERGENTHEIM.

Mergentheim, on the River Tauber, is the old Frankish town whose castle was for centuries the home of the powerful "Deutsch-ritter," a religious order of German knights. The old castle and town are separated by a park and the river from the Kurhaus and modern buildings surrounding the springs. Unlike most German spas, Bad Mergentheim is privately owned. It is to be hoped it will weather the lean years, for in many respects Mergentheim is an ideal cure place. Although patients may live in the lodgings or hostelries in the old town, the principal hotels belong to the spa, and each hotel has a resident doctor. In all these hotels different kinds of diet are prepared daily, and each kind of diet is subdivided according to the needs of the individual patient, the quantity as well as the quality being ordered by the medical resident. A shady promenade and colonnade adjoins the springs, and by the time the orchestra arrives to play the opening morning hymn, most of the patients are on parade sipping their mineral waters. More importance is attached to drinking the waters than in most spas. They are bitter salines containing different quantities of sodium and magnesium sulphates as well as sodium chloride. The ailments principally treated are cholecystitis and gall-stones, cirrhosis of the liver, obesity, diabetes, and catarrhal diseases of the stomach and intestines. At Bad Mergentheim the cure is of primary importance, but full provision is made for amusement, and with Würzburg and Rothenburg within easy reach, it is a very pleasant spot to visit.

BADEN-BADEN.

In a pamphlet issued by the municipal inquiry office it is stated, "Only a small percentage of those who visit Baden come for the cure." More's the pity, but the reason is not far to seek. Baden has been made so attractive by nature and art that it can rely on drawing a sufficient number of visitors whose spending power renders the authorities more or less independent of the invalids on whose support other spas must rely. Gardens, reminding one of the ordered beauty of the Cambridge "Backs," border the banks of the rippling Oos in the bottom of the valley, surrounded by the mountains of the Black Forest. In the spring, with magnolia, syringa, azalea, chestnut, and lilac in bloom, with a soft, warm air sufficiently stirred by the cool breezes following the course of the river, the outdoor conditions are ideal for the invalid or the weary.

The spa waters issue at a temperature of 154° F., and contain lithium and iodine. The bathing establishments have evolved an elaborate form of treatment whereby the patient enters in turn a hot air room, very hot air room, douche massage, steam room, hot swimming bath, cooler immersion bath with sand at the bottom, still cooler swimming bath, cold douche room, and finally a cold plunge bath. This takes about 1½ to 1¾ hours. It is all quite pleasant, and the patient is ready for his couch and towels when it is over. Subsequently a feeling of buoyancy and hunger follows. This must be the moment of temptation for the obese gentlemen who appear to form the majority of those undergoing the cure. The gouty and rheumatic take this treatment, and there are well-equipped inhalation rooms for those suffering from bronchial catarrh. There are luxurious hotels where wealthy people can enjoy rich food and dance till the small hours. It is evident that the practice of early water drinking is not as prevalent as it once was.

BÜHLERHÖHE SANATORIUM, some 800 metres above sea-level, is reached by a 40-minutes irregular ascent from Baden-Baden through the Black Forest. Originally built to accommodate 12 German generals in need of rest or convalescence, it is now under private control, and offers rest and open-air treatment in most attractive surroundings. Diet receives careful attention, and there is a small hydropathic department. The resident physicians have a laboratory where necessary pathological and biochemical investigations can be carried out. Bühlerhöhe is specially recommended for the after-cure of patients with heart disease who have been treated at Nauheim and Kissingen, or after sulphur treatment at Schinznach. Anæmia and non-infectious diseases of the respiratory system are also treated.

WILDBAD.

The little town is situated at a railhead 12 miles up a valley from the main line from Paris to Vienna. That is has historic associations, readers of "Jew Süss" will remember well—they would also understand the presence of several royal baths in the comparatively small bathing establishment. The spa waters issue at a temperature of 91° to 104° F., and are consequently applied without previous heating or cooling. They contain little mineral matter, but are radio-active. Drinking the waters is not pressed, though there is the usual Trinkhalle. Rheumatism and gout are treated by immersion baths, and the waters frequently cause a "bath reaction" after the first five or six baths, after which more rapid progress may be expected. Dr. Schober has made some experiments indicating that the local radio-active waters stimulate a more rapid growth of protoplasm than plain water. Through the valley of Wildbad runs a trout stream, and visitors for the cure can obtain permission to fish a long stretch of likely-looking water.

BAD REICHENHALL.

Reichenhall is a country town, 1500 feet above North Sea level, surrounded by the snow-capped peaks of the Bavarian Alps. The frontier between Austria and Germany runs between Reichenhall and Salzburg, which is only a few miles away, but the passport visa is obtained without difficulty to enable visitors to see the historic palaces and castles of Salzburg. There is a daily air service to Reichenhall from Munich, and as the aeroplane reaches Reichenhall early in the morning and does not leave till evening, it is available for short or long flights over the Bavarian Alps and Austrian Tyrol. Reichenhall has some of the richest salt springs in Germany, containing 24 per cent. salt (as compared with the 2–4 per cent. of sea water) and whilst winning salt is the main industry of the 7000 inhabitants, these salines, containing bromine and iodine salts, are carefully graded for bathing purposes. The mountain air, mild and clear from impurities, is specially suitable

for the sufferers from non-tuberculous pharyngitis, laryngitis, bronchitis, asthma, and hay fever, who flock here from all parts of Germany and Austria. The climate is also beneficial in rickets and scrofula. Inhalatoria and compression chambers abound, whilst the notice that smoking is forbidden meets the eye everywhere. Spitting on the ground would probably be followed by banishment. There is a peasant theatre where the players wear the picturesque national costume. The artists are of peasant origin, but are true professionals. Each performance ends with the folk dances of the Bavarian Highlands, which are invigorating to watch, and recall the small hours of a St. Andrew's night. Bavarian hospitality must be experienced to be appreciated; both place and people make the visitor feel at home.

BAD ELSTER.

This Saxon spa is only a few miles from the neighbouring Czecho-Slovakian spas, Franzensbad and Marienbad, and has very similar waters. These all contain iron and varying quantities of Glauber's salt and sodium bicarbonate, with free carbonic acid gas. Peat baths and packs are used on a large scale. The chief indications for the cure are anæmia and disorders of the respiratory system—tuberculosis excluded—cholecystitis and gastric catarrh, diseases of women, particularly inflammatory conditions of the pelvis and menstrual disorders. The last wing of the new bath-houses has just been opened, and is spacious and well-equipped. Outdoor treatment in sunlight and swimming baths has been well-developed, the climate and surroundings being particularly suitable. Bad Elster is only a small place, but has an attractive casino and theatre and pleasant countryside.

Dr. Köhler's sanatorium is a well-equipped private institution for diagnosis and treatment, where diet is properly controlled. Attached to it is a home for the open-air treatment of poor children suffering from surgical tuberculosis and malnutrition. Excellent work is being done here. Dr. Köhler said that at one time he was only enabled to keep the place going by the aid of money received from the British "Save the Children" Fund. The money sent to him was well spent.

BAD BRAMBACH.

Brambach lies on the frontier between Saxony and Czecho-Slovakia, being about half-way between Bad Elster and Franzensbad. It was only in 1910 that building operations revealed what proved to be the strongest known radio-active springs. There is a large mineral water factory and bottling department, which exports a palatable table-water and ginger ale, the only other buildings being the four small hotels owned by the same company. The bathing rooms are in these hotels. The climate is bracing, and the atmosphere has been shown to be radio-active up to a good height and over a considerable area around the springs. Bad Brambach is still a spa in embryo, but has waters which may some day make it famous.

SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

Report of the Hospital Survey Committee.

A REPORT by this Committee on the hospital facilities and kindred services in the Union was presented to both the Houses of Parliament on June 25th. Sir Edward Thornton was chairman of the Committee, of which there were four other members, and in addition a member for each of the four provinces was nominated to take part in the investigation in so far as the particular province was concerned. The needs of each of the four provinces are dealt with separately in detail. The report lays stress on the extreme shortage of beds at most of the public hospitals, particularly in regard to provision for the coloured and native races. The overcrowded state of many of the hospitals has already been pointed out b the Hospital Committee of Inquiry in 1925, and th present Committee is satisfied that the strain on th hospital beds of the Union to-day is appreciably wors than it was in 1925; at hardly any large centre, wit the exception perhaps of Johannesburg, can it recor any amelioration of conditions. Greater hospita accommodation is required in the Union than i European countries, as separate provision has to b made for European, coloured and native patient The Committee concludes that in other countries ratio of one bed for every 200 persons is the ideal t be aimed at, and that in practice a community is no ill-served if it has one hospital bed for every 250 o its population. In most countries it is generally foun that proportionately greater hospital facilities ar required by the inhabitants of a densely settled are than by those living in the more sparsely populated This is true to a certain extent for South Africa, bu here there are other factors to be taken into co sideration, such as the proportions of the constituen elements of the population and the character, habit and development of each section thereof. Thus it wi be many years before the raw native living in th heart of Natal or the Transkei will require the sam proportion of hospital bed accommodation as th European. Even among Europeans the demand vari enormously. The older generation of Boers, particu larly amongst the farming community, has not lo its fear of hospitals, and in an area such as the Oran Free State the demand for accommodation Europeans is relatively small.

Among the constructive proposals made in th report is the suggestion that each province shall b divided for hospital purposes into a number of centr areas. Under this scheme the Province of the Cape Good Hope would be divided into six of these area and the Transvaal, Natal, and Orange Free State wou each be divided into two. The Committee estimat that if its proposals are accepted a capital expenditu of over £2,000,000 on hospitals will have to provided for the provinces over a period of four or fi years. The approximate figures for each provin are: Cape of Good Hope (including £90,000 for chron sick), £950,000; Transvaal, £574,000; Orange Fr State, £400,000; and Natal, £235,000. The estimates include the cost of building a new gener hospital at Cape Town, the new hospital at Pretor and the new hospital at Bloemfontein; to the co struction of which, it is understood, the Governme is already committed in principle. Their erection w cost not less than £1,000,000. The Committee regar its proposals as minimal. Their adoption would n entirely solve the very unsatisfactory problem of t hospital service in the Union, which in three provinc particularly has been sadly neglected, but it wou at any rate, simplify the position of the Government it ultimately takes over the control of the hospita The Committee believes that Government control bound to come in view of the increasing body of pub opinion which is in favour of it.

Native Medical Practitioners.

In order to bring European medicine within rea of the native population it has been suggested th facilities for the training of natives as medical pra titioners are required. A committee appointed so months ago to consider this question has expressed t conviction that the needs of the native reserves a locations will not be met by providing for an influx natives into the medical profession. Experience other parts of Africa shows that it is exceptional f a native medical practitioner to be content to pract in his home surroundings. He nearly always drifts in a large town, and money spent on his education w the object of providing medical attention for l people in the bush is to a large extent wasted. It h been found impossible in practice to draft agreemen that will bind such practitioners. Apart, howev from this consideration the committee thinks that will not be practicable for many years to give nat students facilities for full medical training in t

outh African hospitals. It will even be a long time robably before native nurses can safely be given sters' posts in the native wards of our large public ospitals, for native nurses in South Africa as well as sewhere in the continent have been found lacking initiative, and tend to become slack when not under ose supervision.

Much to the disappointment of the profession the ledical, Dental, and Pharmacy Bill has been dropped r this session. This is due almost entirely to the mount of time taken up in the Assembly by discussion f the Flag Bill.

During the last few days of the Parliamentary ession the Public Health Act Amendment Bill was assed in a truncated form—i.e., the more urgent lauses dealing with the more efficient administration f public health affairs on the alluvial diamond fields ere passed, while the controversial clauses covering accination, hospital administration, and other matters ere dropped.

The Administrator of the Cape has promised the ppointment of two additional school medical inspectors r the Province, which will make four in all. There as been a great need for a long time for an increase staff in this department.

In Cape Province a native woman recently gave rth to four sons and died in giving birth to a fifth. wo of the quintuplets survived.

The last few years have seen an alarming increase the numbers of wild rodents in many areas. This is tributed partly to the extermination of the natural emies of the rodents—i.e., the smaller cats, owls, and ongooses. The cats were destroyed for their skins. he greater ploughing of land and cultivation for ain and sweet grass make it easier for rodents to rrow and multiply.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Definition of Patent Medicines.

HUNGARIAN law distinguishes between medicines ncocted or mixed by pharmacists, specialties made pharmaceutical manufacturers and sold only by e pharmacists, and patent medicines of the kind lled in England secret remedies. In Hungary there a turnover tax which is payable on medicaments. ne tax is lowest, of course, on regular pharmautical preparations, and highest on the patent edicines, and in order to determine which specialty a regular medicine and which a patent medicine, has been necessary to lay down some definitions. ne regulation states that by the term "patent edicine" (secret remedy) are to be understood such aterials or preparations as are alleged to avert, re, or mitigate any disease, suffering, deficiency, or orbid condition, or to increase or decrease certain odily capabilities whenever (1) their composition, ualitatively or quantitatively, is kept a secret from e buyer; (2) their regular use might be detrimental health or deters the user from employing actually luable medicines or availing himself of efficacious edical help; (3) their selling price is disproporonate to their value; or (4) their advertisement is ot to cause misunderstanding.

Drug Addiction.

A committee on the control of drugs has been ppointed by the Ministry of Health in order to cide how far physicians are justified in prescribing ugs such as heroin and morphine for drug addicts. ne appointment of the committee is the outcome of ntinuous requests for guidance received from ysicians in all parts of the country. Numerous ses have come to the knowledge of the authorities which drug addicts have constantly obtained pplies of morphine, heroin, and other drugs on octors' prescriptions. It is alleged that in some instances these prescriptions are given so that the drug victim may satisfy his cravings, and it is suggested that penalties be inflicted in such cases. For this new legislation may be necessary, but it is believed that the evil can be remedied by the issue of an authoritative statement, the question of penalties being left for the present in the hands of the medical associations.

A Case of Aspirin Poisoning.

Toxic symptoms following the use of the different preparations of acetosalicylic acid have often been reported, but a case recently encountered in a country town in Hungary has a special interest. Fifteen minutes after the ingestion of 1·0 g. aspirin, bought from a regular chemist, the patient developed swelling of the upper lip and deglutition became painful, whilst the pulse- and respiration-rates were much increased. The swelling soon extended to the entire head and was not relieved by cold applications, and somewhat later generalised urticaria made its appearance. On the following day the symptoms disappeared. It is suggested that the symptoms were due to carbolic acid poisoning resulting from the drug being split up in the stomach; the urine is said to have contained large amounts of this acid.

Excessive Heat in Hungary.

The summer heat this year has been considerable, the midday temperature being as much as 35° C. (95° F.) in the shade, the highest figure of recent years. Besides the ordinary inconvenience of hot weather, there are those arising from scarcity of water, particularly in provincial places where the supply is derived from wells. Rivers are almost dried up, and if the drought continues pollution of the remaining water and consequent spread of typhoid and dysentery are to be feared.

X Rays in Ophthalmology.

At a recent meeting of the Hungarian Ophthalmological Society Dr. Béla Horváth read a paper on his experiments on the treatment of certain eye diseases with X rays. He started his experiments two and a half years ago, and has treated 168 patients, the rays being applied on 288 occasions. The dose never exceeded one-third of an erythema dose, and no harmful action was observed. The patients thus treated suffered from many kinds of ocular diseases, including tuberculous conjunctivitis, trachoma, keratitis, chorioretinitis, scleritis, and iritis. As regards the results achieved, a considerable effect was noticed in tuberculous conjunctivitis with the formation of phlyctenules, although the effect on the subjective symptoms and the keratitis was even more pronounced. In trachoma both corneal ulcers and pannus receded quickly; in postoperative hæmorrhages the visual power improved to 5/15 within a few days, whilst in three cases of chorioretinitis the sight improved considerably. In fistulous or phlegmonous dacryocystitis and lymphatic keratoconjunctivitis the effect was variable. In ten cases of parenchymatous keratitis the cornea cleared up rapidly. Dr. Horváth also treated 62 patients suffering from iritis, the result being most striking in acute cases. Local treatment was, of course, employed as well. In a case of relapsing uveal hæmorrhage rapid improvement was noted.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The General Prisons Board.

THE General Prisons Board of Ireland, and in recent years of the Irish Free State, consisted of three members, one of whom was always a medical man. For the past 15 years or so the medical member also acted as inspector of reformatories and industrial schools. A vacancy had recently occurred on the Board by the retirement of Dr. C. J. McCormick, and the Government has decided not to fill it. Instead of

appointing a medical member it is intended to have inspection of the prisons carried out by a medical inspector of the Department of Local Government and Public Health, and this decision has elicited protests from several medical bodies. It is pointed out that inspection of the prisons was by no means the only duty of the medical member of the Board. Being charged with equal responsibility with his colleagues in all matters of prison administration, he was in a position to make his wishes effective. A medical inspector who is in a subordinate position has no further responsibility once he has submitted a report, and he has no power to ensure that his advice is followed. It is suggested, indeed, that instead of medical influence in prison administration being diminished, it ought rather to be increased and that the study of criminology from a scientific point of view should be encouraged.

MEDICINE AND THE LAW.

Marriage of Blood Relations.

THERE must be some eugenic principle in the mind of a man who seeks to prevent his descendants from marrying blood relations. But, if he tries to enforce his wishes by imposing conditions in his will, he must be careful to frame them in such a way that the law courts will support him. A testator left residuary estate to his son for life and after the son's death to the son's children "provided he does not marry a relation by blood, as I wish to mark my great objection to marriage between blood relations." The son, a bachelor aged 37, took the opinion of the Court of Chancery as to whether he would lose his life interest if he knowingly or unknowingly married a blood relation, and whether the limitation upon his choice of a bride had any legal validity. The court had no difficulty in answering that the son's life interest was safe in any event, but it found the second question more puzzling. Blood relationship could not refer merely to the statutory next-of-kin but must describe the relationship existing between any two or more persons who stood in lawful descent from a common ancestor. The chain of descent might be broken by illegitimacy, but, subject to that qualification, all persons descended from a common ancester were blood relations, however many centuries ago the common ancestor might have lived. The restriction in the will was such that it would be difficult, perhaps impossible, to ascertain definitely that any particular woman was not a blood relation. The son would know when he was marrying a blood relation; he would never be certain he was not doing so. A provision which produced these results was one likely to lead to a restraint upon marriage. Public policy requires that there should be no prohibition on marriage. On this ground the judge pronounced the condition in the will to be void. The law reports contain decisions whereby conditions imposing a partial restraint upon marriage have been held to be perfectly valid. A condition against marriage with any person born in Scotland or of Scottish parents has been upheld as valid. So also has a clause which provided for forfeiture in the event of marriage with a person who did not profess the Jewish faith or was not born a Jew. These cases may seem tainted with unreasonable prejudice, but the judges have declined to interfere as the restraint is only partial. The prospective bridegroom is still left a large field of choice in the female world. A condition against marrying a blood relation is regarded as rather more than a mere partial restraint. It is unreasonable because it is so comprehensive and so uncertain; it might tend to deter a man from marrying at all.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.—As a result of the sessional examinations of the Division of Tropical Medicine and Hygiene, Dr. R. Aird has been awarded the Duncan medal.

The Services.

ROYAL ARMY MEDICAL CORPS.

Capt. F. C. Tibbs to be Maj.

The undermentioned Capts. to be Majs. (Prov.): F. R. H Mollan, G. O. F. Alley, A. J. Beveridge, and D. Fettes.

Majs. R. E. Todd, D. B. McGrigor, F. T. Dowling (grante the rank of Lt.-Col.), and J. F. Grant retire on retd. pay.

TERRITORIAL ARMY.

Lt.-Col. G. H. L. Hammerton (Supern.) is retd. on reduc tion of estabt. and retains his rank with permission to wea the prescribed uniform.

Lt.-Col. W. Lister to be Bt. Col.

Lt. E. G. Oastler, from the Supern. List for service wit O.T.C., to be Lt.

N. R. Rawson, late Temp. Capt. R.A.M.C., to be Lt.

H. S. Davies to be Lt.

ROYAL AIR FORCE.

Flying Officer G. A. Ballantyne, D.F.C., is promoted the rank of Flight Lieutenant (Dental) on promotion Captain in the Army Dental Corps.

Flight Lt. J. J. Walsh is transferred to the Reserv Class D.1.

INDIAN MEDICAL SERVICES.

Lt.-Col. W. S. Willmore to be Col.

Temp. Capt. A. H. Ernst relinquishes his temp. commn.

Lt.-Col. L. P. Stephens retires.

Lt.-Col. T. E. Fielding to be officiating A.D.M.S., Poo District, Secunderabad, vice Col. H. Boulton, on leav Maj. M. J. Williams to be D.A.D.M.S., Peshawar Distric vice Maj. B. Johnson, vacated. Maj. E. B. Wade to officiating D.A.D. of Hygiene, Lucknow and Presiden and Assam Districts, vice Maj. E. G. S. Cane, grant leave. Capt. H. T. Findlay to be Officer in Charge, Briga Laboratory, Ambala, vice Maj. R. Davidson, vacate Lt.-Col. D. O. Hyde to be officiating A.D.M.S., Burr District, vice Col. V. J. Crawford, on leave. Maj. E. Kirwan to be Superintendent, Campbell Medical School a Hospital, vice Lt.-Col. W. Harnett. Col. J. Norman Walk Surgeon to the Viceroy, to be Inspector-General of Ci Hospitals, Central Provinces, vice Col. K. V. Kukda Lt.-Col. S. G. S. Haughton to be officiating A.D.M. Kahat District, vice Col. W. O'S. Murphy, on leave. Lt.-C Wingate to be officiating A.D.M.S., Rawalpindi Distri vice Col. A. Choppling, on leave. Maj. M. L. C. Irvi specialist in medicine, C.P. District, has been appointed Kamptee and Jubbulpore for temporary duty. M MacGregor to be Agency Surgeon, Bushire, vice Maj. M. Nicholson, on leave. Capt. N. R. Obhaya, Assistant Direct of Public Health, to hold full charge, vice Dr. K. T. Mathe on leave. Lt.-Col. A. S. Leslie to act as First Physici General Hospital, and Professor of Medicine, Medi College, Madras. Maj. N. M. Mehta to act as Civil Surge Coonoor, vice Lt.-Col. A. S. Leslie, transferred. Dr. Mat Dass to be officiating Civil Surgeon, Jullandar, vice Lt.-C Kanwar Shamshere Singh, on leave. Dr. Tej Chan Pramanic, officiating civil surgeon, Shahabad to Puru to act as Civil Surgeon, Manbhum, vice Dr. B. P. Varm on leave. Dr. Baini Prashas to officiate as Direct Zoological Survey, Central Provinces, vice Maj. Seymo on leave. Dr. Mehdi Khan, medical officer in immedi charge, Sadr Hospital, Hamirpur, to officiate as C Surgeon, vice Khan Sahib Dr. Muhammad Ismail Khan, leave. Dr. Ram Sarup Gupta, medical officer in immedi charge, Prince of Wales Hospital, Cawnpore, to officiate Civil Surgeon, Cawnpore, vice Lt.-Col. H. Ross, on lea Dr. Lachmi Narayan, medical officer in immediate char Sadr Dispensary, Ghazipur, to officiate as Civil Surge Ghazipur, vice Dr. Balahadra Singh. Dr. M. Noronha to Honorary President Magistrate, Bombay.

NORTH PERSIAN FORCES MEMORIAL MEDAL.

Dr. A. Neave Kingsbury, Colonial Medical Services, been awarded the North Persian Forces Memorial Me for the year 1926 for his paper, Some Investigations Malarial Fevers, published in the Transactions of the Ro Society of Tropical Medicine and Hygiene (vol. x No. 8, February, 1926, pp. 459–481). This medal awarded annually for the best paper on tropical medicine hygiene published in any journal during the preced 12 months by any medical officer, of under 12 years' serv of the Royal Navy, Royal Army Medical Corps, Ro Air Force, Indian Medical Service, or of the Colonial Med Service, provided the Memorial Committee consider t any of the papers published has attained a standard merit justifying an award.

Obituary.

HORATIO BRYAN DONKIN, M.D. OXF., F.R.C.P. LOND.,

CONSULTING PHYSICIAN, WESTMINSTER HOSPITAL.

WE deeply regret to record the death of Sir Bryan onkin, the well-known physician and criminologist, hich occurred at his house in Hyde Park-street, ondon, on ly 26th, n the ghty-third ar of his e.

Bryan onkin was e son of civil engi- er of the me name nd the andson of ryan onkin, gineer, tronomer, nd in- ntor, who signed, mong ny other tivities, e first per-mills. was born Black- ath in 45 and eived his ly educa- on at ackheath oprietary hool, ence he nt to een's Col- e, Oxford, an open olar, to duate in e first- ss of the assical os. The owledge "the maner ters," ough er ob- ded by m, in- med his ught and writings ughout life, and to the same intensive study may be ributed the close and often destructive logic of his uments.

SIR BRYAN DONKIN.

His first intention was to go to the Bar, but he ered it in favour of medicine and took his medical cation at St. Thomas's Hospital, where he served house physician; he graduated M.B. in 1873, oming M.R.C.P. Lond. in the following year, en he was elected assistant physician to the stminster Hospital. By many generations of stminster men he will be remembered as a clear her and an excellent clinician, but his earliest cial mark in the medical profession came from his association with the East London Hospital for Children, where he had been elected physician a little previously. As the outcome of his work there he published some 35 years ago a treatise on diseases of childhood, which was based to a great extent on the records and recollections of nearly 20 years' service at the East London Hospital, and the work was recognised at once as a distinct addition to the current books on pediatrics—it was in every sense original, remarkably well written, and founded on large experience, both general and special. Later, however, his name became definitely associated with neurological investigation of a broad sort. He wrote in the medical journals and particularly in *Brain* essays that were clinically sound while philosophical in their trend, and he became known especially in connexion with criminology and psychological investigation. In 1904 he was a member of the Royal Commission appointed to consider the measures for the control of the feeble-minded, and from that time on he was a member of various departmental committees appointed by the Home Office.

From this time forward his lectures and contributions to medical and general literature were many, dealing with such allied subjects as the influence of heredity in mental disease, the part played by venereal contaminations in mental pathology, and the connexions between disease and crime, between fraud and spiritualism, and between faith and credulity. His contributions on these subjects were of the greatest value in producing logical views in many regions of thought where temptation to obscurant mysticism was being manifested. He was both in these writings and in the discussions which they would often elicit, downright in his methods, and where he was dealing

with scientific processes that are still in flux, he might give the impression of intolerance; but he was an absolutely fair man, writing as he saw, and putting out only such views as he believed himself able to justify not only out of wide reading, but especially out of ample personal experience.

Donkin was appointed a Prison Commissioner in succession to Captain W. J. Stopford on Oct. 1st, 1898, and in accordance with a recommendation of the Gladstone Committee on Prison Reform that there should always be a medical man on the Board of Prison Commissioners. He was an active member of the Royal Commission on the care and control of the feebleminded (1908), the outcome of which was the Mental Deficiency Act of 1913, which has had such beneficial effect in causing the removal of mental defectives from the unsuitable environment of prisons to certified institutions. He retired on Feb. 1st, 1910, on attaining the age of 65, but his valuable services, which were recognised by the knighthood conferred in the following year, were not lost to the Prison Commission, for he was appointed medical adviser to the Board and to be a director of convict prisons; this post entitled him to a seat on the Council of Supervision for Parkhurst Criminal Lunatic Asylum and to sign as a director certificates of insanity under the Criminal Lunatics Act, 1884. In addition he was made a member of the Board of Visitors for the State Inebriate Reformatory at Aylesbury, a member of the Visiting Committee of the Borstal Institution at Aylesbury, and a member of the Advisory Committee at Camp Hill in the Isle of Wight, a prison for men undergoing sentences of preventive detention. He was actively engaged in the duties of the last appointment until quite recently.

From "G. B. G.," of the department of the Home Office, with which Donkin was so long connected, we have received the following appreciation of a regretted colleague: "Sir Bryan Donkin's reaction on the prison staff from the date of first appointment as Commissioner was profound, and his wide general culture combined with his knowledge of general medicine, nervous diseases, and insanity increased that influence as the years went on. He was equable and kindly but firm as an administrator, and his opinions on medical subjects was universally welcomed by medical officers. He was keen to the last and it was a joy to discuss with him some point in ethics or psychology He had no use for psycho-analysis as his remarks in McBride's 'Psycho-analysts Analysed' show. The members of the Prison Service have lost a much loved friend and adviser, and the thought of one at least who stood at Sir Bryan's graveside on Friday morning last and who had known him intimately for nearly 30 years was that he had now solved the great problem on which we had had so many conversations. Sir Bryan had been obviously failing in health for the last year or so, and the Prison Service desire to tender their respectful sympathy on her loss to Lady Donkin, whose unremitting care enabled his friends to enjoy the benefit of his keen intellectual powers to the end."

Donkin's connexion with the Royal College of Physicians of London was intimate and important. He was elected F.R.C.P. in 1880, served on the Examining Board for three years, was a Councillor for the same length of time, and in 1910 was appointed Harveian Orator, when he delivered an oration on the inheritance of mental characters, showing exactly that catholic spirit in scientific inquiry for which he always stood. Harvey said: "The son is born like his parents, and virtues which ennoble and vices which degrade a race are sometimes passed on to the descendants through a long series of years." The considerateness and conciseness with which Dr. Donkin treated the vast questions arising from such a theme were recognised by all who read this Oration, in which will be found the theories of crime and the conceptions of the nature and temperament of criminals on which he relied in his various directions of public work.

Many of the special circumstances in his Government appointments, as well as the general fact of his long career as a hospital physician, conspired to giv Donkin a deep interest in syphilitic problems in thei widest sense; he approached them from the socio logical as well as the pathological side. He thu became a vigorous supporter of his conviction shared by many others, medical and lay, that medica men should make known to their patients those mean of prophylaxis against venereal infections with whic science has of late years supplied us. Consequentl when some ten years ago the association termed th National Council for Combating Venereal Disease —now the British Hygiene Social Council—wa embarrassed by strongly divided opinions on thi question, Donkin became alike the most eloquen and the most logical of those who held other views He thought that medical men were hampered i giving this information by mediæval doctrine, leadin them to regard sexual disease from a different stand point from that which they maintained toward all other diseases. He did not minimise the forc of moral or religious instruction, but, as he did no consider that these factors would operate successfull to a considerable extent in checking the gratificatio of sexual instinct by irregular intercourse, he hel that the dissemination of the venereal diseases shou be checked by the promotion of effectual prophylax for exactly the same reasons as those which wou be induced as the arguments for preventive measur in respect of other diseases.

From his life-long friend, Sir Seymour Sharkey, v have received the following tribute: "I first ma Donkin's acquaintance in 1873, when he was hou physician to Dr. Murchison at St. Thomas's Hospita and acquaintance soon ripened into friendship whi lasted as long as he lived, for Donkin was a trus friend, loyal and affectionate, whose ardour cou cool only under very exceptional circumstanc Having won an open scholarship at Oxford and lat taken a first-class in "Greats," he possessed a ve solid foundation on which to build a career, and bei a great reader and interested in most human affa he naturally became a very interesting companio He was fond of conversation and of comparing h views with those of others. He formed very defin opinions and supported them keenly, but witho dogmatism. To hear him conversing with wom which he was very fond of doing, even on diffic subjects, was a lesson in good breeding. He spo with as much care and consideration as he show to men, but treated them with infinite gentlen and so gained many a devoted friend and admir On public questions where his opinions were direc opposed to those of his friends he could carry on long debate without creating bitterness. Don was a man who had his heroes and chief amon these was the late Sir Samuel Wilks. He took leading part in the foundation of a small din club, with Wilks as its first president, which m three times a year and was called the "Fifteen Clu and after Sir Samuel Wilks's death the "Sam Wilks Fifteen Club." The members consist eminent surgeons and physicians on the staffs of great London teaching hospitals. It was foun in 1885 and is flourishing now in its forty-third y Donkin was secretary from its foundation until death. In February, 1924, on the proposal of Thomas Barlow he undertook to write a sh history of the club, a task which he accomplis in 1926."

Donkin married first Augusta, daughter of Co di Langhi, a Polish lady, and the widow of P Edward Palmer, the oriental scholar; he mar secondly, late in life, Marie, daughter of Will Reston, of North Carolina, and widow of Mr. W Bates, of Belfast. In private and in club life he a man of many friends, to whom his qualities of f and sincerity appealed. At the Savile Club he be especially missed, for he was a member of v long standing, and with many close ties to his fell members. Despite his age and the effects of a re and severe illness he maintained good health till end, the terminating phase being short.

CHARLES THEODORE WILLIAM HIRSCH, M.R.C.S. ENG.

Dr. Charles Hirsch, who died rather suddenly on ıly 28th after an operation, was 58 years of age. e was born in London, educated at King's College ıd the London Hospital Medical School, and ıalified L.S.A. in 1890, taking the conjoint qualifica- ɔn a year later. After holding a resident appoint- ent at the North-Eastern Hospital for Children and sisting in the ophthalmic clinic at the London ospital, he went out to Fiji as a medical officer ıder the Colonial Office. While there he conducted careful inquiry into a form of pernicious anæmia ry prevalent in the islands, the origin of which he tributed to the absorption of intestinal toxins acting ɔon the liver and giving rise to a condition of ıronic hæmolysis. On returning home after six ars he settled in Woolwich, where he entered into ırtnership in a general practice, was elected to the aff of the Woolwich and Plumstead Cottage Hospital, ıd became civil surgeon to the Royal Arsenal. At e same period he was divisional surgeon to the etropolitan Police, a district medical officer of the etropolitan Water Board, and a medical referee of e Royal Arsenal Coöperative Society. At this time, ɔ, he was an enthusiastic supporter of the move- ent for first-aid, and lectured for the St. John nbulance Association and at the L.C.C. evening ıools. For some years he was surgeon to the ıining ship *Warspite*.

On the outbreak of war in 1914, Dr. Hirsch held captaincy in the Home Reserve of the R.A.M.C., d became anæsthetist to the Royal Herbert ɔspital, Woolwich, and later to the Military Ortho- ɛdic Hospital at Shepherds Bush. The arduous ɔrk undermined his health and he had to undergo ɛerious abdominal operation from which he narrowly ɛaped with his life. After the war he devoted nself exclusively to anæsthetic work, and was norary officer to no less than nine hospitals— mely, the London Temperance, the Grosvenor and maritan for Women, the Metropolitan Nose, Throat d Ear, the Western Ophthalmic, the National ntal, the Maida Vale and West End for Nervous sease, and the Royal Ear. This work would have en sufficient in itself to occupy the energies of a ong and vigorous man, for he was most punctilious carrying out his duties at all of them, but in dition he was greatly in demand for private anæs- ɛtics. Outside his professional work Dr. Hirsch s a keen motorist, and was always well ormed upon the latest in technical equipment. ɛiting on motor-car matters became a hobby to n and for many years he kept readers of E LANCET in touch with them. Of his personal alities a surgeon friend writes: "Dr. Hirsch was most capable, careful, and helpful anæsthetist, npathetic to his patients and always on the alert try new methods and improve old ones. He was admirable teacher and many post-graduates have ɔse to remember with gratitude the lessons they ɛrnt from him. Nothing was too much trouble for n. At all times of day and night, whether for spital or private work, he was the same cheery ling worker."

On July 25th, after a full day of hospital work, had a recurrence of his old symptoms and died rtly after operation two days later. He leaves a low and one daughter.

HOSPITAL SUNDAY FUND.—This Fund will amount August 9th to £79,100, and the committee recommend distribution of £79,000. Grants made include: London spital, £7080; Middlesex and Convalescent Home, 75; Guy's, £3270; St. George's, £3200; St. Thomas's, 35; University College, £2465; Royal Free, £2325; yal Northern, £2150; King's College, £2080; West- ster, £1750; and Charing Cross, £1660. The report es that 7½ per cent. of the total sum available for distri- on has been appropriated to the purchase of surgical liances, and 2½ per cent. for district nursing associations.

BRITISH AND AMERICAN NEUROLOGISTS.

MEETING IN LONDON.

(*Continued from p. 259.*)

THE joint meeting of the American Neurological Association and the Section of Neurology of the Royal Society of Medicine was continued on Wednesday, July 27th, when the morning was devoted to a discussion on

THE CEREBELLUM.

Dr. H. A. RILEY (New York) presented a paper by himself and Dr. FREDERICK TILNEY (New York) on the comparative morphology of the cerebellum, first demonstrating charts and models of the inferior olive and its connexions, and particularly the lateral expansions of the cerebellum in the primate series. He had gathered as many forms as possible in the mammalian series in order to show a correlation of the arbor vitæ with the physical form of the animal concerned, and the patterns of cerebellum shown on the screen represented an evolutionary series. The following conclusions had been reached: (1) The modification of Bolk's cerebellar diagram and scheme showed a division of the anterior lobe into definite vermal and hemispheral portions. (2) The division of the cerebellum into an anterior and a posterior lobe was sufficient; no useful purpose was served by adding a middle lobe. (3) The arbor vitæ and folial patterns showed that the most cephalic and the most caudal portions of the vermis underwent the least degree of significant modification. (4) The ungulates developed a paravermis in lobule C and lobule B. (5) The aquatic mammals showed a very striking uniformity in the development of the lobulus paraflocularis, and this might be associated with the specialisation of the axial and appendicular musculature for the particular type of progression required for life in the water. (6) It was quite possible to homologise the various subdivisions of the human cerebellum with the accepted constituents of the schematic cerebellar patterns. (7) The sulcus horizontalis magnus seemed to be the homologue of the sulcus intercruralis. (8) No definite statement could yet be made as to functional localisation in all the lobules of the cerebellum. (9) The study offered but little confirmation of the accepted functional capacities of the anterior lobe of the cerebellum. (10) Lobulus 4 and lobulus C, with their associated hemispheral expansion, showed the greatest progressive differentiation and efflorescence. It was definitely associated with the part played by the cerebral cortex in its influence over cerebellar unfolding, and might be correlated with the perfection of the patterns for skilled movements and unilateral independence of the fore and hind limbs. (11) Elaborations of this study might present material of value in further attempts to establish functional localisation in the cerebellum.

Dr. L. J. POLLOCK (Chicago) read a paper by himself and Dr. L. DAVIS on the physiology of the cerebellum. It set out the results of a series of studies on reflex patterns obtained from animals which had been de-cerebrated by an anæmic method. The paper was illustrated by the kinematograph.

Dr. A. T. MUSSEN (Baltimore) set out experimental results, also by moving pictures.

Dr. T. H. WEISENBURG (Philadelphia) dealt with the clinical aspect. He said there was no more controversial subject in neurology to-day than the function of the cerebellum. The same remark also applied, to some extent, to the interpretation of symptoms arising from lesions of this organ. The reason for this lay, in part, in the nomenclature used to describe local disturbances arising in cerebellar disease. Rarely did two authors employ the current terms to convey exactly the same meaning. The chief reason for this was that cerebellar disturbances were manifested in disordered movements, and those movements did not lend themselves to easy description. When he began to study movements with the kine-

matograph he found that his clinical interpretations had been no more than general impressions. There was, he thought, abundant clinical evidence that cerebellar localisation existed. Most authors seemed to be content if they diagnosed a cerebellar lesion, without particularising further. In his own cases he had made more errors where the cerebellar symptoms were obvious—e.g., in tumours of the third ventricle or tumours accompanied by intracranial pressure with involvement of the cerebellum—than in cases showing limited cerebellar functions. In the latter he had made a focal diagnosis, which had been confirmed post mortem. It was often said, in connexion with the cerebellar gait, that it made little difference whether the eyes of the patient were open or closed. He had asked a cerebellar patient to walk across the stage with his eyes open, and found that the patient instinctively corrected his gait by his sight and hearing. When blindfolded he corrected the gait by his hearing. When the patient was blindfold and absolute silence was observed the true cerebellar gait at once became manifest. Moving pictures had enabled him to differentiate various kinds of gait. From the peculiarities of the gait he considered that certain clinical deductions were justifiable. When trunk movements were involved it meant there was a lesion in the thalamus; when the patient staggered backwards probably the anterior or inferior portion of the thalamus was implicated. If the upper part of the trunk was involved the lesion was probably in the superior vermis. He had not seen any instance of the lesion being limited to the right or left lobe. In cerebellar patients it was possible to find dysergia of the arms and legs alone; he had seen cases in which disturbances of arms and legs occurred without involvement of trunk. He agreed with Hughlings Jackson that the cerebellum did not act alone, but functioned in association with other levels and in conjunction with the lower levels in the spinal cord. There was, he contended, a difference in the symptoms of a case according to the lesion present.

Dr. LAURETTE BENDER spoke of her researches in Holland on localisation of control of the vocal cords. In the normal dog, before operation, the vocal cord movements were seen to correspond with the respiratory rhythm. Accessory movements not synchronous with respiration could be demonstrated immediately after the operation and disappeared a little later. The dogs were allowed to live 18 days after their recovery, and when their brains were examined lesions were found in the vermis and the roof nuclei and in the tissues surrounding the fourth ventricle. It was concluded that lesions in the cerebellum could produce disturbances of the cerebellar ataxic type in vocal cords, but these did not occur unless the lesion involved the tracts connecting the cerebellum with the medulla. Control of the vocal cords was not localised to any particular part of the cortex or the roof nuclei.

Discussion.

Dr. F. M. R. WALSHE (London) said that the outlook on the problem of cerebellar function was now distinctly more hopeful. The best knowledge on the sensitive component of the cerebellar functions was due to Gordon Holmes. It had been necessary to rule out volition and study the behaviour of decerebrate animals, and it was to the study of such decerebrate animals that the profession owed what knowledge it had gained. The cerebellum was not responsible for regulation of tone, posture, or equilibrium, and there was no cerebellar ataxy. A close functional relationship had been found between the cerebellar and the cerebral cortex, and it might be that the cerebellum found its function in the process of synthesis and analysis.

Dr. GORDON HOLMES (London) said that defect symptoms of the cerebellum could only be obvious when the brain was intact, and the functions of the cerebellum, looked at clinically, must be closely related to those of the fore-brain. He held that nystagmus was a relatively constant symptom of cerebellar lesions, and that it could proceed from a lesions in the cerebellum alone. Some time ago he had collected all the cases of local lesion of the cortex of the cerebellum which were recorded in the notes of the National Hospital, Queen-square; there were about 20 of them, and he was unable to discover evidence of focal representation of parts of the body in the cortex of the cerebellum, though there was no doubt that when the vermis and mesial portions of the cerebellum were injured there was a greater tendency to disturbance of speech and trunk movements and attitudes. In no case had he ever found definite evidence that a local lesion of any portion of the lateral lobes would produce exclusive, or even predominant, affection of arm or of leg, though there was no doubt in his mind that a cerebellar lesion affected the upper limb more than the lower. Still affection of isolated movements of the lower limb was a cause of disturbance of gait, not characteristic nor invariable, but common in local cerebellar lesions.

Dr. KINNIER WILSON (London) said that skew deviation of the eyes was a comparative rarity in cerebellar disease, but was occasionally seen. Early in his work at Queen-square he had photographed a case with skew-deviation which had come on after an operation performed on the same day by Sir Victor Horsley. That deviation Horsley had attributed to a lesion of the superior peduncle. By skew-deviation he meant one eye going down and in and the other going up and out. It had always seemed to him that this movement was such as might be expected if the eyes were turned in order to correct an apparent movement of the head. It was almost impossible to get this in the human subject, excepting under pathological conditions, but he showed a toy dog whose head would move though its eyes were fixed. If this toy were tilted to one side the eyes took up the position of skew-deviation. The lesson of that was that if for some reason the head did not move, under pathological conditions, deviation of eyes was a compensatory movement.

CLINICAL MEETING.

At a clinical meeting on Wednesday afternoon Sir JAMES PURVES-STEWART (London) showed a boy aged 18, who had a Blood Cyst Located by Pneumo-radiograms. At 12 years of age he had cerebral concussion after falling on the ice, and four months ago he had developed headache and diplopia with no apparent cause. Visual acuity was not diminished but the optic discs were somewhat blurred. There was paresis of the right external rectus and of the left side of the face. The optic discs swelled progressively and the blind spot in each eye was slightly enlarged. Pneumoradiograms showed displacement of the right lateral ventricle towards the left. Therefore a wide decompression was done in the right frontal area, and a subdural cyst the size of a turkey egg, containing blood and altered blood, was evacuated. Since that operation the clinical improvement had been uneventful.

Dr. GORDON HOLMES showed a boy, aged 14, who habitually fell on hearing a noise. He came of healthy stock, no member of the family had a similar affection; he always had good health, and had always done well at school. At 5 years of age he was observed to fall on hearing an unexpected noise or on being startled, even on being suddenly touched from behind. He often sustained fractures on these occasions. There was no change of colour, vertigo, or giddiness; his limbs suddenly flexed and he fell, but he could usually rise at once without assistance. Treatment by means of thyroid, pituitary, bromide, and luminal produced no benefit. A radiogram revealed a rather small sella turcica. He was unnaturally fat, but took little exercise. His skin was rather hairless, but the sexual organs were well developed. When in hospital he had an epileptic attack during sleep, the eyes deviating to the right. He did not lose sphincter control nor bite his tongue, but sometimes he had some soreness of his tongue in the morning. A gun fired behind him at the meeting did not cause him to fall.

Dr. W. J. ADIE said he had long been interested in all kinds of sudden attacks, but had seen nothing like those of this patient. He did not think Dr. Holmes's

se was one of narcolepsy, in which if the patient saw e funny side of something and laughed heartily he ll. Anger and annoyance also caused falling. either had this boy any attacks of inevitable sleep. homsen's disease might cause sudden falling of this ind. The case seemed to be in a class by itself.

Dr. WEISENBURG pointed out that these patients uld resist the manifestation of their peculiarity if nusual circumstances were present, such as those the meeting; he had experienced the same peculiar nial in emotional cases.

Dr. C. L. DANA (New York) said he had seen a mber of cases similar to this and had termed the ndition "falling sickness." He felt sure that they ere epileptic in type.

Dr. C. P. SYMONDS (London) showed a boy, aged 12, ith Schilder's encephalitis. At 2 years of age he gan to have fits, which, the mother said, usually gan as convulsive twitchings of the right side of e face, the right arm, and leg; the twitchings came generalised and the patient lost consciousness. e seemed to be mentally backward and was nervous. o other signs developing, he was discharged with the agnosis of Jacksonian epilepsy. In July, 1919, he as readmitted as he had had a left-sided Jacksonian tack. It was then seen that he had optic atrophy th defective vision, especially in the lower part of e fields. Cerebral tumour was provisionally agnosed, and he was discharged. In September, 22, he had a series of convulsive attacks, chiefly the right side. A younger brother had died of hilder's disease, as proved post mortem.

Dr. ADIE showed three cases. The first was e of Familial Periodic Paralysis. The patient was boy of 13, who often on waking in the morning was able to move hand or foot or to speak. Gradually e weakness passed off, the passing occupying from ree to four hours to two days. The number of acks averaged about one a fortnight. The father d had similar attacks since the age of 4.

The second was a case of Myasthenia Gravis in a y of 10. The onset, two months ago, was rapid. ere was double vision and a generalised weakness of voluntary movements. There was no muscular sting nor fibrillation. The tendon responses were much diminished and the plantar responses were ntar flexor. X rays did not show any enlargement the thymus.

Dr. BERNARD SACHS (New York) suggested that a agram be taken through the open mouth so as to ermine whether there was a fracture of the ntoid process. He quoted a case with similar nptoms in which such a fracture was found.

Dr. DOUGLAS MCALPINE (London) showed a case Syphilitic Amyotrophy in a woman aged 53. teen years ago the patient noticed a weakness of ankles, in consequence of which her feet gradually pped, to the accompaniment of cramp-like pains the legs. Thirteen years ago the left hand, and r the right, became weak in the same way, and the scles of the hands became wasted. No history could obtained of tabetic pains, diplopia, or sphincter dis-lity. The onset suggested a polyneuritis.

Dr. DANA said he had seen several cases of loco-tor ataxy develop typical progressive muscular ophy.

Dr. W. B. CADWALADER (Philadelphia) said that ny patients with chronic tabes of the extreme xic type had considerable muscular wasting, and ny were alcoholic. In some there was doubtless an holic multiple neuritis superimposed on the philitic process.

Dr. ANTHONY FEILING (London) showed a case of netic Facial Paralysis. The boy, aged 8, showed unusual condition of defective innervation of the scles of the right side of the face. He preserved untary power to innervate his facial muscles on h sides, but there was nearly complete paralysis of vement on the right side of his face for emotional ressions. If he were asked to show his teeth he oluntarily screwed up both eyes equally well.

Mr. LINDSAY REA (London) showed patients with extra-ocular paralysis of sudden onset. There were, he said, two types, one of them "rheumatic" and seen chiefly in young women. The first patient had three attacks which cleared up with salicylic acid; then, as that failed, her teeth were seen to, and she had not had another attack in the intervening three years. In the other type, with similar manifestations, the blood pressure was always raised.

Thursday morning was devoted to a discussion on

SENSORY DISORDERS IN ORGANIC DISEASE OF THE NERVOUS SYSTEM.

In view of the illness of Sir Henry Head a message was sent to him referring to his classical contributions to the knowledge of the sensory nervous system.

Prof. J. S. B. STOPFORD (Manchester) said that his experiences favoured Head's interpretation of cutaneous sensation, but he thought that some modification of that authority's views were necessary in regard to deep sensibility. Deep sensibility did not seem to be in accord with any other of the divisions of cutaneous sensation, nor to represent any stage in the phylogenetic history of sensation. This was because more had to be learnt about deep sensibility; there were two stages, comparable to those seen in cutaneous sensibility. After the division of a posterior root an intermediate zone was found in which protopathic sensibility was lost and epicritic sensibility was retained, the reverse of what was seen after division of a peripheral nerve. There was strong evidence that two distinct and independent systems existed, and it was possible for one group of elements to be retained and the other lost. And recovery after successful suture of a peripheral nerve took place in two stages. He had never yet seen a perfect recovery of epicritic sensibility after secondary suture which involved resection of a piece of the nerve trunk. In some parts of the body one of the systems alone was present—e.g., in the glans penis, where there was only protopathic sensibility. If definite pressure was exerted on the glans pain suddenly emerged, of a diffuse and very disagreeable type.

Dr. WILFRED HARRIS (London) dealt with sensory disorders due to spinal and brain-stem lesions. He said that lesions of the posterior columns and the anterolateral and anterior columns, as well as of the central grey matter and posterior root-zone, caused sensory changes of various kinds. Gunshot or stab wounds might be limited to one side of the cord or to the posterior columns, or they might afford useful evidence in the differentiation of function of the afferent spinal tracts. In the slighter cases of myelitis, or in the recovering stage, differentiation of sensation was often met with. Total anæsthesia to all forms of tactile sense—pain, pressure, and temperature—was rare in association with cord lesions, except in acute softening, ascending myelitis, tumour, wounds of the cord, or fracture-dislocation. Pain and temperature might be more involved than tactile sensation, and frequently the Brown-Sequard syndrome might be demonstrable. Excessive sensitiveness to a scratch might be seen at a stage of protopathic recovery of an injured nerve, and paræsthesia, tingling, numbness or formication of the legs were common.

Dr. GORDON HOLMES discussed sensory lesions due to spinal and cortical lesions. He said that Head and he had come to the conclusion that there were many qualities of sensation which could come to consciousness without the intervention of the cortex, and these were attributed to the optic thalamus. Certain portions of the brain-stem could also be engaged in it. Certain qualities of sensation were never completely abolished by a cortical lesion, and this was particularly true of pain. In many extensive cortical lesions there was an alteration to sensibility to pain over the corresponding areas of the body. In intelligent patients it could be proved that it was really in the nature of a qualitative change. He believed that the actual sensation of pain was never lost. Sometimes associated with typical cortical loss hysterical phenomena were encountered. With tactile sensi-

bility the question was more difficult, and some reliable form of æsthesiometer was required. Hallucinations were frequent and tended to vitiate the inquiry. Sometimes on ceasing to touch the patient he would delay his indication of the fact for seconds, even minutes. He thought the explanation lay in the fact that the normal cortical inhibitions of the thalamus had gone, whilst the lower subcortical levels remained in an active state; in other words, it was a release phenomenon. Dr. Holmes appealed for a more common use of the compass-test in examining ordinary cases of suspected cerebral disease; he had found it very important. He had had four cases recently in which it showed the only form of sensation which was disturbed. In three of those the lesion was near the apex of the hemisphere.

Head recognised three functions of the cerebral cortex: (1) appreciation of relationships in space; (2) faculty of reacting appropriately to stimuli of differing intensity; (3) recognition of similarity and difference. As to the part of the cortex which was concerned with sensation, Dr. Holmes said he did not think any portion of the cortex in front of the fissure of Rolando had any direct sensory functions. He considered that the sensory cortex extended considerably backwards to the anterior limb of the supramarginal gyrus. The more direct forms of sensation, such as the tactile, lay anteriorly, and the sense of position probably lay behind this; the more complicated qualities, such as recognition of form, were more posterior, towards the apex of the hemisphere.

Dr. KINNIER WILSON contributed a paper entitled

Certain Dysæsthesiæ and their Neural Correlates.

Complaints of tingling, numbness, and pins-and-needles were, he said, met with daily by every practising neurologist, but it was seldom asked what was the basis for these sensations. They were called "subjective," but this was a bad term, seeing that all sensations were subjective. People described as subjective sensations in which, objectively, they failed to find any particular change in sensibility. One could not know what were the sensations of a patient with a thalamic lesion unless he described them; and if he could do so the way must be open between the thalamus and the speech mechanism. He spoke of the condition present in elderly women who had had a hard-working life and who held their hands in a slightly flexed position and complained of dysæsthesia, mostly at night. He attributed these symptoms to a relative ischæmia. Another group was that of acro-asphyxia and acrodynia. There was a variety in which unbearable pain in the hands was experienced, associated with other phenomena of vascular character. In thalamic cases dysæsthesia was very common. He had never seen dysæsthesia of pain in a cortical case, but he had seen one of the pins-and-needles variety, certainly of cortical origin, and one of thermal dysæsthesia as an aura to a Jacksonian fit. He thought the question of the relation of the vascular and sensitive systems should be approached again. For instance, there were cases of venous neuralgia, which only Edinger, he believed, had referred to. He concluded by raising the question of the value of periarterial sympathectomy, and quoted a case in which unbearable pains in the limbs, unaffected by other treatments, including injection of alcohol, were cured by sympathectomy.

Dr. POLLOCK discussed the influence of overlapping function from adjacent nerves in the return of tactile sense after nerve severance.

Dr. SIDNEY SCHWAB (St. Louis) said that any logical attempt to study pain must be concerned with the person who was subjected to that sensation. The problem of sensation must always be associated with that of the awareness of the individual. States described by patients were so described according to their ability to give a description. Often dysæsthesiæ were related to somatic delusions, and he recommended a study, from this standpoint, of hypochondriasis.

Dr. CASA MAJOR said that the sensory examination of a patient must be, in part, subjective, for the doctor's knowledge must depend on the information which had sifted through the consciousness of the patient. He discussed the question of the point at which differentiation of types took place.

Dr. WEISENBURG pleaded for an uniform method of examining patients and recording the results, as well as a better systematised terminology. The discussion was continued by Dr. K. A. PETRÉN (Lund) and Dr. B. BROUWER (Amsterdam).

On Thursday afternoon the following papers were read and discussed:—Dr. ADOLF MEYER (for the late Dr. C. B. Dunlop, New York): Pathological Changes in Huntingdon's Chorea. Dr. S. KINNIER WILSON: A Case of Senile Chorea. Dr. PURDON MARTIN: A Case of Hemichorea resulting from a Small Cerebral Hæmorrhage. Dr. J. G. GREENFIELD and Dr. RUBY STERN: On the Anatomical Identity of the Werdnig-Hoffman and Oppenheim Forms of Infantile Muscular Atrophy. Dr. GILBERT BECK and Dr. J. G. GREENFIELD: Diffuse Myelitis with Optic Atrophy. Dr. C. WORSTER-DROUGHT and Dr. CARNEGIE DICKSON: A Case of Hypopituitarism (Lorain type).

HUGHLINGS JACKSON LECTURE.

Dr. CHARLES L. DANA (President of the American Neurological Association) concluded the proceedings by delivering the Hughlings Jackson lecture. To his great regret, he said, he had never personally known Dr. Hughlings Jackson, but the whole profession was aware of his great intellectual endowments, his great contributions to neurology, and his charming character. Science in many instances had advanced by learning what had been done in the past; a further view ahead was obtained by standing on the shoulders of those who did epoch-making work.

Speaking of the early days of neurology in the United States, he said that in those days it was often thought that the special function of neurology was to make people think they were safe; it was felt that if anyone was nervous it was due to his own fault of continual introspection—a view which had now entirely disappeared even to-day. American neurology in its virile state, could be said to have been the fruit of the Civil War, to which Weir Mitchell, Hammond, and W. Keen owed much of the wealth of material on which their enlightened practice and their writings were based. Many believed that war was the foster-mother of medicine, and certainly the recent world war seemed to have given a tremendous impetus to neurology, and in America had added greatly to the number of men taking it up as a specialty. In future their work would most usefully lie along the course of prevention, a subject which had been too much neglected. For many nervous diseases there was no cure, rightly so called; hence the high importance of establishing on a large scale methods of prevention. Dr. Dana concluded his lecture by speaking of what was popularly termed the nervous constitution. What was meant by nervousness? To the lay mind it meant an exaggerated mental and physical activity; the patient said he could not sit still, could not prevent himself or herself thinking all the time. There might be present also discomfort and much futile effort. He considered, however, that the nervous temperament was the highest form of constitutional make-up; it was well to have some degree of nervousness in a community. He preferred it to the lymphatic or melancholic constitution. Out of this nervousness might be developed a mechanism by which life extended its capacity and enlarged its vision, and he thought that efforts should not be made to prevent neuroses by developing a lymphatic, slow temperament. He believed in the functional activity of the mast-tissue of the body.

Sir CHARLES SHERRINGTON, in proposing a cordial vote of thanks to Dr. Dana, spoke appreciatively of the experimental neurology done in America. Dr. Dana's name, he said, was intimately associated with this advance in his own country, as well as with a charming hospitality which had always been extended to those who crossed the Atlantic from England.

Correspondence.

"Audi alteram partem."

OOD FACTORS IN RELATION TO PREVENTION OF DISEASES OF THE TEETH.

To the Editor of THE LANCET.

SIR,—May I be permitted to emphasise the nportance of the paper on this subject by Dr. J. im Wallace published in your last issue? Therein e conveys a lesson of supreme importance to our rofession, one which, if duly heeded, will prevent n immense amount of disease and suffering.

His message is just this: That caries is initiated y the corroding action on the teeth of acid generated y the fermentation of saccharide food, that the outest tooth is no more capable of resisting this rroding action than the feeblest, that every tooth erforce decays at those parts of it where saccharide od remains in prolonged contact, and that no tooth ecays if kept clean. In short, *dental decay is wholly reventable by dental cleanliness.* It is for us to see iat this pregnant truth is brought home to the mmunity.

No one who has studied Dr. Wallace's paper with n open mind can well fail to be convinced by his guments. Unfortunately there are still some who cline to the older view—that dental decay is largely ie to inherent lack of resistance on the part of the eth, and that its disastrous prevalence in this untry is due to such inherent weakness, the result a deficiency of vitamins, or what not, in the national et. In view of the evidence brought forward by r. Wallace I cannot but think that those who aintain and propagate this view incur a grave sponsibility by encouraging the popular belief that eth decay of themselves, as it were, no matter what ecautions are taken, whereas it can be stated with athematical certainty that teeth, if properly cleansed, not decay.

I am, Sir, yours faithfully,

Harley-street, W., August 1st. HARRY CAMPBELL.

DIET AND DIETISTS.

To the Editor of THE LANCET.

SIR,—The controversy that is taking place in your lumns is certainly confusing to the members of our ofession and more so to the general public. Certain atements are made by the advocates of white ead which do not coincide with experimental dings.

Within the last few years I have carried out at ast 400 feeding experiments myself, and I have en allowed by Prof. Drummond and Prof. Plimmer see the results of their feeding experiments, and for e life of me I cannot understand why there should any doubt whatsoever as regards the value of amin B in nutrition. The tests are very simple. ey have been carried out by many experimentalists; ey have been published over and over; yet there mes on the scene in the form of a manifesto that r diet, using white bread, is perfectly safe. Why es not a committee choose either Prof. Drummond Prof. Plimmer to carry out under the observance three well-known physicians a test with feeding white bread and feeding on wholemeal bread? personally, am unable to keep my rats alive longer an five weeks on a B-deficiency diet. If I add per cent. of wheat germ to their diet my animals e almost indefinitely. This surely is ample proof at white bread is deficient in its vitamin content. Dr. Hallilay's results, which he gives in your last ue, of the effects of wholemeal on the population the Punjab should also be convincing, and I quite derstand the absence of appendicitis, or at least e smaller percentage of appendicitis, amongst the abitants of the Punjab than amongst the white population of India, as anyone who has the least knowledge of deficiency diseases must have noticed the atrophy of both the longitudinal and circular muscles of the intestine and the marked atrophy of the mucous membrane that must lead to stasis with the resulting infection of the appendix.

I am, Sir, yours faithfully,

M. J. ROWLANDS.

The Knightsbridge Laboratories, Sloane-street, S.W., July 29th, 1927.

COLOUR TESTS FOR VITAMIN A.

To the Editor of THE LANCET.

SIR,—Dr. Peacock has raised several points of importance on which we should like to comment.

First, in regard to the data employed to express the dosage of ultra-violet rays. The time (duration) of exposure and the distance of the irradiated material from the lamp supplying the rays are the data commonly used (e.g., in light clinics) throughout the country to measure amounts of irradiation. These data were therefore included in our brief account of the destruction of vitamin A in cod-liver oil by direct irradiation, which was described in greater detail in a paper published recently in the *Biochemical Journal* (1926, xx., 1292). We had, however, appreciated the fact mentioned by Dr. Peacock, that the amount of irradiation is also affected both by the type of lamp employed and by fluctuations in its efficiency. We were much interested in his further data regarding his own experiments, and particularly in his method of registering the output of the lamp by means of an ammeter and voltmeter. It would be valuable to hear the experience of other investigators who have used power consumption to measure the amount of irradiation. In our own case, by courtesy of Dr. R. A. Morton, this measurement of the output of ultra-violet rays has been made by the use of actinometers of various types, in which the rays produce specific chemical changes, such as the conversion of potassium nitrate into potassium nitrite, or the decomposition of oxalic acid, whose reaction products can be estimated chemically. An advantage of these actinometers would seem to be that, since the different chemical reactions are activated by rays of different wavelengths, it is possible, by using different reactions, to measure the output of energy in different parts of the ultra-violet spectrum, a result which could not be obtained by the use of power consumption as a criterion.

At the time of writing the above-mentioned paper on colour tests, the technique of using these actinometers had not advanced sufficiently to justify their mention. We could thus only state the type of lamp used and the fact that its output of ultra-violet rays had been shown by control experiments to be reasonably constant. Later results with actinometers, however, have shown that in the case of certain lamps there may be a loss of more than half the efficiency within a few weeks of putting them into use, and we would strongly endorse Dr. Peacock's suggestion for the establishment of international units for measuring the efficiency of all lamps employed as sources of ultra-violet rays.

A second point to which we would draw attention, and on which Dr. Peacock has obtained results supporting our own investigations, is the effect of irradiation in rendering vitamin A unstable. In your leading article of July 2nd it was pointed out that in irradiating milk to produce vitamin D there is danger that this may simultaneously cause the destruction of vitamin A, as was first shown to occur in butter by Zilva in 1919. At the outset of our investigations we hoped to overcome this difficulty by cutting down the period of irradiation to a point at which a valuable amount of vitamin D would be produced but no significant amount of vitamin A destroyed. Unfortunately, this hope had to be abandoned when we discovered that after a vitamin A-containing substance such as cod-liver oil had been

exposed to ultra-violet light even for a few minutes only, there was produced in the oil some substance, possibly of the nature of an organic peroxide, which continued to cause the destruction of vitamin A. An initial loss of about 3 per cent. of the vitamin had increased in three months' time to about 25 per cent., and after six months there was very little of the vitamin left. This observation raises serious difficulties in the commercial application of irradiation methods to foodstuffs on a large scale.

A consideration of various experimental results has led us to take great interest in the close connexion between vitamins A and D, especially in regard to the action of light under different conditions. In the case of spinach, which has long been known as a potent vegetable source of vitamin A, it has been demonstrated that the original low content of vitamin D can be markedly increased by exposure of the leaves to the action of ultra-violet rays, either those present in sunlight or artificially produced. On the other hand, the ultra-violet rays, either in sunlight or artificially produced, have been found by Dr. Peacock and ourselves to destroy vitamin A in cod-liver oil. From the recent work of Dr. Coward, however, it would appear that ultra-violet light can accelerate the formation of vitamin A in living plant tissues. From this it would also appear that the action of sunlight on vitamin A is probably different in living and in dead tissues. Many interesting and important questions arise from these observations, if they are confirmed. Is the wave-length of the rays which destroy vitamin A the same as that of the rays which produce vitamin D? Are vitamins A and D derived from the same parent substance? Do the pigments in the living plant play a part in selecting the particular rays which produce vitamin D? These and other questions suggest themselves at once for consideration in future applications of ultra-violet light both to food materials and in actinotherapy.

We are, Sir, yours faithfully,

STANLEY G. WILLIMOTT.
Cambridge, July 22nd. FRANK WOKES.

TETANUS FOLLOWING INTRAMUSCULAR INJECTION OF QUININE.

To the Editor of THE LANCET.

SIR,—It always seems to me that the cause of tetanus after intramuscular injection of quinine is a rusty hypodermic needle. On the west coast of Africa where tetanus spores are common I have made many injections of quinine without mishap. I have used a platinum needle and have refused steel needles, because when once damp they always go rusty inside even if kept bright on the outside.

There is another point. Intramuscular injection of a dense solution of quinine causes a necrotic nodule in goats and I have no doubt the same is produced in human beings. I therefore use bihydrochloride of quinine, one part dissolved in eight or ten of water. There is no need for prolonged boiling. Ten grains of the quinine salt in 80 drops of water and brought once to the boil is sufficient. Similarly a teaspoon and a hypodermic syringe and platinum needle brought once to the boil suffice for the apparatus. The test-tube containing the quinine solution should be stopped with flamed wool while it cools. The teaspoon is to pour the solution into so as to get it into the syringe. I rub over the puncture made by the needle with tinct. benzoin. co. or collodium, as what between the sweating of the patient and an occasional drop of blood which comes on withdrawing the needle it has seemed to me that infection by the puncture is possible.

I am not here considering the intracellular solidifying injections of quinine which I recommended many years ago [1] for the purpose of securing a few months' immunity from malaria in negro children.

I am, Sir, yours faithfully,

Linden-gardens, W., August 1st. G. F. DARKER.

[1] Brit. Med. Jour., 1906, ii., 1577.

MEDICAL PRACTICE IN COLOMBIA.

To the Editor of THE LANCET.

SIR,—In your issue of June 18th, under the headin Practice Abroad, it is stated that "In Colombia a unqualified person can in certain circumstances obtai permission to practise medicine but not surgery. May I state that in accordance with recent legislatio nobody can under any circumstances get permissio to practise medicine without being qualified.

Article 3 of Law 85 of 1922, which deals exclusivel with the medical profession, reads as follows:—

"Foreign doctors in possession of diplomas granted abroa are allowed to practise medicine in Colombia provided th they can show their academic title legalised by a diplomat or consular agent for the Republic in the country of t origin of the said title and provided that they can personally identified and pass a theoretical and practic examination directed by the examining board created by th Law in accordance with the following conditions:" (He the conditions are mentioned in detail.)

The above Law is published in pages 267, 268, and 26 of the Official Book issued by the Congress in 192

The provision mentioned in your article refers very special cases and is only applicable to Colombian These cases are defined in Article 11 of the said La which stipulates that in a village where there is certified doctor permission can be given to a pra titioner to perform the duties of a doctor.

I am, Sir, yours faithfully,

J. MEDINA,
Director, Colombian Government Bureau of Information and Trade Development.
7, Sicilian-avenue, Southampton-row, London W.C., July 19th, 1927.

PATHOLOGICAL LABORATORIES AND THE B.M.A.

To the Editor of THE LANCET.

SIR,—At the annual representative meeting of t British Medical Association, held on July 16th la the following resolution is reported to have be passed unanimously:—

"That the Representative Body disapproves of the esta lishment by trading firms of laboratories as subsidia enterprises for the purpose of offering pathological exami tions and reports on individual cases, and advises membe of the Association to avoid any association with su enterprises."

Inasmuch as this might be taken to apply to a pathological laboratory established by a commerc firm, the Virol Pathological Research Laborator wish to place before you the following statement reply.

These Laboratories were established by Virol L 14 years ago in order to provide for registered medi practitioners—to whom the services of the Laborator are confined—pathological tests at a scale of fe which should be within the reach of patients of limit income, and for research in clinical pathology. Duri this period over 2000 medical practitioners a 400 public health authorities have availed themsel of the services of the Laboratories.

The Laboratories are under medical control a have no connexion with the commercial side Virol Ltd. The fees accruing from patholog tests have been devoted, after payment of establi ment charges and salaries, to research in clini pathology. No proportion of the profits has be received by Virol Ltd. As regards research, numer investigations have been conducted by the staff, records of which have been published in the medi press of this and other countries. All reports and always have been signed by one or more qualif medical men, thus fixing responsibility for the opini expressed therein. They are issued only to registe medical practitioners and never to patients direct.

On the question of competition with priv pathologists, which was raised at the meeting of Association, it may be observed that this, so far it occurs, is inherent in the difference betwee large laboratory and a single worker. In the c

the former, the staff consists of investigators
ıo have specialised in different branches of patho-
ɣy, so that any given specimen can be examined
ɔm the bacteriological, serological, biochemical,
ematological, and histological points of view. In
her words, the opinion given is that of a "team"
d not of one man only, who is seldom himself
pert in all branches of pathology. Furthermore,
e provision of laboratory facilities for patients of
nited means is rendered possible only by the receipt
a large number of specimens—many more, in
ɔt, than a single pathologist could examine. It
llows that the private pathologist receives from
s patients higher fees for the tests he performs.
ith this branch of practice the Virol Pathological
esearch Laboratories do not compete.

It is regrettable that this wholesale condemnation
"commercial" laboratories should have been
ade without any discrimination in regard to the
ture and quality of the work performed, and
tirely ignoring the important point as to whether
e services of any given laboratory have been
und of value to medical practitioners in the diagnosis
d treatment of disease, at fees which their patients
n afford to pay.

I am, Sir, yours faithfully,

A. KNYVETT GORDON, M.B.,
Medical Superintendent, Virol Pathological Research
July 30th, 1927. Laboratories.

EDICAL SCIENCE IN THE CITY OF YORK.

To the Editor of THE LANCET.

SIR,—"The long and intimate connexion of the
y of York with medicine and surgery," to which
ference was made in the issue of THE LANCET of
ly 9th (page 78), is a subject the study of which
uld well repay the medical historian. Few cities
ve an equal record of illustrious physicians and
geons who have earned fame in their day and
neration. The Gild of Barber-Surgeons of the City
York existed from the twelfth century, and the
ries in the roll of freemen contain seven names of
ber-surgeons from the year 1299. That they
ained eminence in their profession is proved by an
ry in the exchequer accounts of John Wodehouse,
der date 1346: "Payments to Master William
Bolton (freedom 1318) and Hugh Kelvington
edom 1348), barber surgeons, going from York to
Castle of Bamburgh to heal the said David de
s, who lay there, having been wounded with an
ow in the said battle [Neville's Cross] and to extract
arrow and heal him with dispatch, £6." William
Bolton was a munificent donor to the building of
nave of York Minster, and his arms are displayed
ve one of the arches therein. An Ordinance of
4 has reference to the yearly appointment of a
ster in anatomy who twice during his year of office
s bound, under pain of a fine of 10*s.*, to lecture
n some surgical or anatomical subject, accom-
ied by a practical demonstration upon the cadaver.
this purpose the body of an executed prisoner
delivered at every assize. The master of anatomy
one of the "searchers" once in six weeks coached
apprentices "of all such as practise chirurgerie."
asionally a candidate was failed: "Francis
gham, Mr., but insufficiente for surgerie, and also
ine the xxtie of Aprill, 1615, he is found insufficiente
n full personal consente of the whole Companye."

he ordinances of the Gild are now in the British
eum (Egerton MSS. 2572), but the earliest are
se in Register A/Y, folio 72, preserved in the
hives of the city. In the Minster library is a bound
me of medical MSS. on vellum in different hand-
ings, one of which bears the date 1432. Of
able York medical practitioners a few may be
tioned—e.g., Martin Lister, F.R.S., physician to
en Anne; Theophilus Garencieres; Robert
tie, F.R.C.P. (1632–81); John Gowland,
thecary to George I.; Sir Clinton Wintringham,
sician-general to King George II. at the battle of
ttingen, and his father of the same name, who built
the house in Lendal, with the head of Æsculapius over
the doorway, now used as the "Judge's lodgings"; John Burton, author of "Monasticon Eboracense" and the prototype of Sterne's "Dr. Slop" in "Tristram Shandy"; Francis Drake (1696–1771), author of "Eboracum"; Thomas Fowler, the originator of "Fowler's solution"; John Thurnam, author of "Crania Britannica"; and James Atkinson, surgeon to the Duke of York, whose "Medical Bibliography" the late Sir William Osler described as "one of the most delightful books ever written by a medical man." These are but a few of those who have shed lustre on the medical profession and on the city which harboured them. *Quasi cursores vitai lampada tradunt.*

It may be mentioned that the York Medical Society is one of the oldest existing medical societies in the provinces.—I am, Sir, yours faithfully,

Birmingham, July 16th, 1927. GEORGE A. AUDEN.

POOR-LAW HOSPITALS.

To the Editor of THE LANCET.

SIR,—Mr. Hamilton Bailey's attack upon the Poor-law medical officer in your issue of July 30th would appear to demand some reply from that "degraded" section of the profession. What precisely is meant by "professional degradation" is not entirely clear. Possibly it bears some relationship to that sense of professional humiliation which undoubtedly results not from "being associated with Poor-law" but from the necessity of devoting much time to the attempt to alleviate the dying miseries of surgical failures from the voluntary hospitals.

We are, Sir, yours faithfully,

CHARLES W. BROOK,
FREDK. W. COLLINGWOOD,
RICHARD G. ORAM,
J. L. WOODHOUSE.

Southwark Hospital, July 30th, 1927.

THE LABELLING OF EGGS.

To the Editor of THE LANCET.

SIR,—I was interested in Dr. G. Clark Trotter's letter on this subject in THE LANCET of July 16th, and I thoroughly agree with his remarks. As a general practitioner who is constantly prescribing "new laid" eggs for my patients, I have at times been dissatisfied with them, and knowing the tricks of the trade, as mentioned by Dr. Clark Trotter, in some of my serious cases I have supplied them with eggs from my own fowls. I consider that it is a very serious matter for the public to be deceived as they are; they should know what they are buying. A "new laid" egg should not be more than three or four days old, and very few imported eggs can claim to be this. I would suggest that the safest way for the public would be to have each egg stamped with the name of the country from which it came. I hope that not only medical officers of health but also general practitioners will take up this matter.

I am, Sir, yours faithfully,

A. G. EVERARD, M.R.C.S., L.R.C.P.

Clapham-road, S.W., July 18th, 1927.

To the Editor of THE LANCET.

SIR,—Your readers will, I am sure, be pleased that the misleading labelling of eggs is being ventilated in your columns. The housewife has indeed a difficult task, perhaps one might say almost an impossible one, to make certain that she obtains home produce. From the correspondence, as well as what has appeared in the public press, it is evident that the purchaser is quite commonly misled, and that imported eggs are sold to the farmer for mixing purposes so that the vendor of "home farm" eggs may be deceived. A good case seems to have been made out for marking the imported egg.

I am, Sir, yours faithfully,

E. FAIRFIELD THOMAS, M.D.

Oakley-street, S.W., July 26th, 1927.

CONTRACEPTIVE DRUGS.

To the Editor of THE LANCET.

SIR,—Allusion has recently been made in your columns to the possible effects of a drug such as chinosol on the female genital passages. It has always seemed to me that enough attention has not been given to another possibility in connexion with the use of this and similar drugs. It is common knowledge that their use has not always the desired effect, and the spermatozoon may break through the antiseptic "barrage." Should this occur, it is not unreasonable to suppose that, in a proportion of cases, the germ-cell, while it survives, has nevertheless been damaged. A drug which can kill may in a non-lethal concentration cause injury. A damaged spermatozoon may still be capable of fertilising an ovum, and it would seem almost certain that such a partly poisoned male element must seriously affect the development of the embryo. May it not be that here is to be found the explanation of some of the cases of congenital mental and physical defect? Mental defect, amounting often to imbecility, is found, to a greater extent than I think is realised, among the offspring of the well-to-do, and it is often impossible to ascribe the disaster to hereditary factors; the parents may indeed be above the normal in intelligence. Careful inquiry into the sexual habits might throw more light on the problem of causation in these cases than the tracing of a family history through several generations. There is already some evidence on the experimental side of the effects of damaging fertilised ova in their early stages of development, and it might be worth while to endeavour to observe the action of contraceptive drugs (in spite of the obvious difficulties) in the case of rapidly breeding mammals.

I am, Sir, yours faithfully,

CHAS. E. THORNTON, M.B., B.S.

Rodenhurst-road, S.W., July 26th, 1927.

THE CERTIFICATION OF LUNACY.

To the Editor of THE LANCET.

SIR,—It has already been stated in your columns but deserves iteration that there has never yet been a clear decision by the House of Lords on the question whether the mere grant of a certificate should render a doctor liable to an action for damages. It is not the certificate but the magistrate's order made consequent upon the certificate that sends a patient to the asylum. The magistrate who makes the order is protected *virtute officii* from any form of action; yet his is the hand who signs the warrant. He is not bound to sign it. He may ignore the certificate if he is not satisfied. Why should the doctor who is in reality only a witness upon whose testimony the justice makes an order be exposed, unlike any other witness in any other court, to the risk of an action for damages? As well might the mere witness at the Old Bailey who swears that he saw the prisoner breaking and entering the house of the prosecutor be cast in damages at the suit of the thief.

It is recorded that an old judge who was compelled to decide a case in accordance with principles which he did not approve, ended his judgment with these words: "Had we, the judges, been makers of the law this question had not been. But we are not here to make law but to administer it, and this I say to silence those who would protest against us." In the course of his judgment Mr. Justice McCardie clearly intimated his dissatisfaction with the present state of things when he said: "It may well be that as the result of past litigation many doctors have refused, and would refuse to take any part whatever in the work of certification because of the perils and anxieties of litigation which may occur." Many of those now practising at the Bar would agree with him that some further protective legislation is needed.

I am, Sir, yours faithfully,

July 29th, 1927. LEX.

THE MEDICAL DIRECTORY.

To the Editor of THE LANCET.

SIR,—The annual circular has been posted to eac member of the medical profession. If the form ha not been received, a duplicate will be sent on reques We shall be grateful for the return of the forms b an early post.

We are, Sir, yours faithfully,

J. AND A. CHURCHILL.

7, Great Marlborough-street, W., July 29th, 1927.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AN SURGEONS OF ENGLAND.—At a meeting of the Comitia the Royal College of Physicians and of the Council of t Royal College of Surgeons on July 28th, diplomas of L.R.C. and M.R.C.S. were respectively conferred upon 179 candidat (146 men and 33 women), who have passed the Final Examin tion in Medicine, Surgery, and Midwifery of the Conjoi Board and have complied with the by-laws of the Colleg The following are the names and medical schools of th successful candidates:—

S. I. Abrahams, Guy's; Florence A. Adam, Royal Fre Florence M. Allen, King's Coll.; N. H. C. Allen, Guy' * V. F. Anderson, Westminster; J. H. Attwood, S Bart.'s; Grace L. Austin, Univ. Coll.; I. Bakhsh, Guy' D. S. M. Barlow, Univ. Coll.; W. V. Beach, Guy's; A. C. Bell, St. Bart.'s; J. F. Bell, Liverpool; Constance M. Bishop, Charing Cross; W. Blayney, St. Thomas's; Bode, Berlin and London; * J. A. F. Bouloux and J. Boyd, Univ. Coll.; A. H. Brockbank, Guy's; W. Brookes, Liverpool; W. H. Brown, St. Mary's; S. Budd, Cardiff; D. R. W. Burbury, London; J. Cameron, Liverpool; D. C. Carroll, Cambridge and Londo Margaret B. Carter, St. Mary's; J. T. Chesterman, Brist F. H. Chick, Birmingham; M. Cohen, Middlesex; C. Cooke-Taylor, Edinburgh and Univ. Coll.; S. Craddo St. Mary's; L. J. Crosskey, Birmingham; J. N. Cumin King's Coll.; Constance M. Cusden, Charing Cross; Alva Daniell, Punjab and Royal Free; T. S. Daniels, Cape a Guy's; E. L. Davies, Univ. Coll.; W. A. Davi Liverpool; P. M. Davidson, London; S. Deaner, Mary's; H. G. de Silva, Ceylon and Middlesex; C. D'Netto, Calcutta and London; C. W. L. Dodd and G. Dorling, London; Doris V. Douglas-Norman, King's Co P. J. Dowling, Middlesex; Helen L. Dunn, Charing Cro D. E. Dunnill, Guy's; Evelyn Durrance, Royal Free; G. Eason, Cambridge and St. Bart.'s; T. Edmunds, Car and St. Thomas's; Jessie Edwards, Charing Cross; J. Edwards, Cardiff and St. Bart.'s; R. W. Eldridge, Liverp A. Erian, Cairo and St. Bart.'s; M. R. Ernst, St. Bart Muriel F. M. Evans, Charing Cross; Margaret C. Falcon Royal Free; H. W. Fell, Liverpool; G. S. Ferraby, Kin Coll.; J. Fitzsimons, Otago and Middlesex; F. For Univ. Coll.; H. L. Fuller, Bristol; C. E. Gallagher, Guy J. C. Gent, Bristol and St. Mary's; R. C. D'A. Giffo Birmingham; F. H. Gillett, Cambridge and St. Thoma R. V. Goodliffe, St. Bart.'s; L. C. Griffin, St. Thoma C. D. Gun-Munro, King's Coll.; P. E. T. Hancock, Cambri and St. Bart.'s; H. Hannessen, Manitoba and Lond Alma B. Hardy, Madras and Royal Free; L. I. Har Leeds; Eunice M. Hatch, Royal Free and St. Mar J. E. Heggart, Middlesex; G. B. M. Heggs, St. Mar C. Hill, Cambridge and London; H. Hillaby, St. Bart Phyllis N. Hooper, Cardiff; M. K. Hussein, Cairo and Bart.'s; P. Inwald, Middlesex; A. Ismail, Cairo and Thomas's; P. B. Jackson, Middlesex; H. E. Jan Univ. Coll.; H. M. Jaques, Middlesex; J. L. G. Jenk Cardiff and St. Bart.'s; A. M. Jones, Cardiff; D. N Jones, Cambridge and St. Mary's; Lily A. Jörgen Melbourne and Royal Free; P. Kaplin, St. Mary's; E Keeble, Cambridge and London; Caroline M. Kingsl St. Mary's; A. König, Berlin and Middlesex; O. L. Lan Cambridge and London; D. A. Langhorne, St. Bar G. Lee, St. Thomas's; J. A. Lee, Durham; F. G. Le Cambridge and London; C. A. Levy, St. Thomas's; Oliv E. Lister, Oxford and King's Coll.; F. Lomas, Liverp M. S. Mahmood, Punjab and Middlesex; R. Manesche Cape and Guy's; Muriel M. Manley, Royal Free and Mary's; E. W. Martindell, Univ. Coll.; T. E. Matth Cambridge and St. Mary's; K. S. May, King's C M. Y. May, Madras and Royal Free; F. J. Mayne, Gu L. P. McBrien, St. Thomas's; R. A. McCance, Cambr and King's Coll.; J. McHugh, Liverpool; T. W. Mor Cardiff and St. Thomas's; V. V. Morgan and E. G. Middlesex; J. B. Murray, Cambridge and St. Geor *Ethel E. M. Ogilvie, Royal Free; R. Oliver, Univ. C R. O'Meara, Birmingham; A. B. Pain, Leeds; W. P Cardiff; * Dulcie J. Peake, Royal Free; T. Pe Liverpool; M. V. P. Peiris, Ceylon and St. Thom E. U. H. Pentreath, St. Bart.'s; Mary E. Percy, Birmingh R. F. Phillips, St. Bart.'s; J. R. Pierre, Univ. C M. W. Platel, Madras and St. Bart.'s; O. Plow Guy's; A. D. Polonsky, Cape and Liverpool; W. F Priest, King's Coll.; G. W. Rake, Guy's; W. Ra London, H. L. Rees, King's Coll.; J. R. Rickett, G

L. T. Ride, Melbourne and Guy's; Muriel Rippin, Univ. Coll.; Margaret A. Ritchie, Charing Cross; E. H. Roberts, St. Bart.'s; * Phyllis M. Robottom, Westminster; E. ap I. Rosser, Cardiff and St. Bart.'s; M. Rothkopf, Middlesex; H. Royle, St. Bart.'s; J. E. Saville, St. Thomas's; D. P. H. Schafer and N. T. H. Schafer, Adelaide and London; H. Schneidin, Middlesex; R. H. Scott, St. Mary's; G. S. Seed, Leeds; C. W. Shaw, Cambridge and St. George's; N. L. Shepperd, King's Coll.; F. C. Simpson, Manchester; B. D. Sindhwani, Bombay and Durham; Hilda W. Slack, Royal Free; Eileen R. B. Snow, Royal Free and St. Mary's; P. A. M. Soutter, Westminster; Dorothy Taylor, Cambridge and St. Mary's; V. J. M. Taylor, Liverpool; R. G. Thomas, St. Thomas's; E. C. Till, Guy's; R. H. Tootill, Manchester; H. A. Tracey, Oxford and St. Bart.'s; * Winifred M. Turner, Royal Free; S. Tyagaraja, Cambridge and St. Thomas's; K. S. A. Venkatachala Ayyar, Madras and Guy's; A. D. Versteegh, Harvard and St. Thomas's; F. L. H. Voller, St. Thomas's; * Joan B. Walker, Royal Free; E. Ward, Manchester; E. N. Wardle, Liverpool; A. G. Watkins, Cardiff and Univ. Coll.; P. H. Whitaker, Liverpool; Margaret A. Willcox, Cambridge and King's Coll.; F. C. Wilson, King's Coll.; W. M. Wilson, St. Bart.'s; J. Woolff, Cape and St. Thomas's; R. L. Wynne, Liverpool; and H. Yousri, Birmingham.

* Diploma of M.R.C.S. was conferred previously.

The undermentioned diplomas were jointly conferred on the following candidates:—

DIPLOMA IN PUBLIC HEALTH.

B. F. Beatson, Elizabeth Bird, Marion Bow, C. E. W. Bower, C. H. Budge, S. C. Chopra, N. P. Dalal, C. J. Donelan, Doris L. Durie, W. C. Harvey, N. M. Hodivala, A. Y. Ibrahim, J. S. Kapadia, Dorothy F. McIntosh, M. S. Mahmood, J. P. Marsden, Doris I. Mart, J. N. Mehra, T. C. St. C. Morton, S. G. Nashikkar, Margaret M. Nolan, Esther Novinsky, R. S. Ralph, H. Ratnarajah, J. L. Stuart, E. V. Suckling, and Elsie Thomson.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.

A. S. Anderson, M. A. H. Atiya, J. Biggam, Catherine McL. Buchanan, W. B. Clipsham, A. G. Curzon-Miller, Edith Hatherley, E. F. King, V. M. Metivier, F. J. B. Miller, J. H. Moorhouse, W. M. Muirhead, W. D. O'Donoghue, W. J. Robertson, G. Singh, R. G. Stott, S. E. Ward, J. R. Wheeler, and M. Yuille.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on July 28th, Sir John Rose Bradford, the President, being in the chair. The following candidates having satisfied the Censors' Board were admitted as Members:—

Murray McC. Baird, Henry T. Barron, Charles P. Blacker, Vernon H. Brink, Eric B. Brooke, Hugh P. Dawson, Robert van Buren Emmons, Ernest T. D. Fletcher, Alexander W. Gill, Katharine A. C. Gillie, James A. Glover, John G. J. Green, Alice E. B. Harding, George A. Hardwicke, John A James, John W. Joule, George H. K. Macalister, Douglas H. MacLeod, Greer E. Malcomson, Alexander K. Miller, Jessie L. Robb, Wilmot Samarasinghe, Ronald E. Smith, Claude A. Taylor, John H. M. Walker, Edwin C. Warner, Henry L. Wilson, John G. Wilson.

Licences to practise physic were granted to 179 candidates who had conformed to the by-laws and regulations of the College and passed the Final Examination in Medicine, Surgery, and Midwifery of the Examining Board in England. Diplomas were granted jointly with the Royal College of Surgeons to 27 candidates in Public Health, to 12 in Psychological Medicine, to 19 in Ophthalmic Medicine and Surgery, and to 12 in Laryngology and Otology.

The following were elected officers of the College for the ensuing year:—

Censors.—Sir Edward Farquhar Buzzard, Dr. F. J. Poynton, Dr. A. P. Beddard, and Dr. J. W. Carr.
Emeritus Treasurer.—Sir Dyce Duckworth.
Treasurer.—Dr. S. P. Phillips.
Registrar.—Dr. Raymond Crawfurd.
Harveian Librarian.—Dr. Arnold Chaplin.
Assistant Registrar.—Dr. R. O. Moon.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—At a meeting of the College held on July 27th, Dr. A. Logan Turner, the President, in the chair, the following 29 candidates, out of 55 entered, who passed the requisite examinations on April 1st, were admitted Fellows:—

Hamish M. Anderson, William A. Nasabushanam Chanmugam, John N. Chesterman, Gopinath Singh Chowdhary, William D. Cruickshank, Praphulla Chandra Datta, Thomas D. Deighton, Eric G. Dingley, Arthur H. McC. Eaton, Henry R. Haigh, Henry W. Harvey, Thomas G. I. James, Victor F. Lambert, William J. Liddle, Ralph Lodge, Herbert Lord, Peter A. McCredie, George McNeill, Wilfred Park, Arthur D. Pegg, George A. Pollock, Nanikram Chartsing Ramchandani, Ronald M. Savage, Julienne Singham, Robert I Stirling, Edward C. Tamplin, John M. R. Thomas, Margaret C. Tod, and Weldon P. T. Watts.

MEDICAL TOUR OF THE FRENCH RIVIERA.—The Medical Society of the Mediterranean Coast has arranged a tour of the French Riviera from Dec. 30th to Jan. 7th next. It will be open to all medical practitioners and their families, and further information may be had from the French National Touring Office, 56, Haymarket, London, S.W. 1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At an ordinary meeting of the Council held on July 28th, Sir Berkeley Moynihan, President, in the chair, Mr. Thelwall Thomas, the recently re-elected member of the Council, was introduced and took his seat in the Council. Mr. J. Lewin Payne was re-elected a member of the Board of Examiners in Dental Surgery. An offer by the Committee of Management of King's College Hospital to lend permanently to the College Lord Lister's Surgical Notes was accepted.—A letter was read from Dr. A. Primrose on behalf of the Canadian Medical Association thanking the Council for the interest they have taken in facilitating the taking of the examination of the Royal College of Surgeons by candidates from the Dominion of Canada. A letter had been sent regarding the arrangements which might be made for holding Primary Examinations for the Fellowship to the Canadian Medical Association.—The Council have accepted with much appreciation a gift of £5000 from Mr. Buckston Browne, F.R.C.S., to be invested, the interest from such investment to be expended in providing an annual dinner on the College premises for Fellows and Members of the College and such others as the President and Council may wish to invite, at least half the guests invited to be Members of the College.—A sum of £100 was voted for expenses in connexion with an investigation, to be carried out in the museum workrooms by Sir Charles Ballance, with the assistance of Mr. Burne and Mr. S. Steward, regarding the rejuvenation of nerves by the method of tissue culture.

UNIVERSITY OF CAMBRIDGE.—Mr. H. L. Wilson, of Emmanuel College, has been elected to the E. G. Fearnsides Scholarship for the encouragement of clinical research among the organic diseases of the nervous system.

MILROY LECTURES.—The Council of the Royal College of Physicians of London announces that applications for the office of Milroy Lecturer for 1929 must be addressed to the Registrar by Sept. 28th next. Particulars will be found in our advertisement columns.

UNIVERSITY OF LEEDS.—In connexion with the forthcoming meeting of the British Association at Leeds it has been decided to confer the honorary degree of Doctor of Laws upon Sir Arthur Keith, F.R.S., President of the Association (1927–28), and the degree of Doctor of Science upon Dr. John Scott Haldane, F.R.S.

METROPOLITAN ASYLUMS BOARD.—A three months' course of lectures and demonstrations on Clinical Practice and in Hospital Administration will be given at the North-Eastern Hospital, St. Ann's-road, Tottenham, N. 15, by Dr. F. H. Thomson, medical superintendent, on Mondays and Wednesdays, at 4.45 P.M., and alternate Saturdays, at 11 A.M., beginning on Monday, Oct. 3rd. Particulars are obtainable from the Clerk to the Board, Victoria Embankment, London, E.C. 4.

LANCASHIRE TUBERCULOSIS HOSPITAL.—The Lancashire County Tuberculosis Committee has decided to provide more accommodation for the treatment of cases of acute tuberculosis at the Wrightington Hall Estate, near Parbold, where there is about 160 acres of land. The Ministry of Health will recommend a grant of £180 per head towards the capital expenditure involved in the scheme to provide 226 beds on the estate.

APPOINTMENT OF WOMAN POLICE DOCTOR.—The Watch Committee of the City Council of Manchester has appointed Mrs. Nesta Helen Wells, M.B., of Chorlton-on-Medlock, as medical officer to the Manchester City Police Force. This is said to be the first appointment of its kind in the country and is the result of a decision by the City Council some months ago that the examination of women suspects or prisoners should be carried out by a woman rather than by a man.

THE LATE DR. J. S. BROOKFIELD.—Dr. John Storrs Brookfield, who died on July 19th at the age of 82, was a striking figure in the medical school of the University of Edinburgh in the late 'sixties and early 'seventies of last century. He had graduated in Arts at the University of New Brunswick in 1864, and was somewhat older than his contemporaries at Edinburgh, but he entered with enthusiasm into both intramural and extramural activities at the University. He graduated as M.B. in 1871, and became M.R.C.S. Eng. in the same year. In 1873 he proceeded to the M.D. degree. He served as medical officer of health at Penistone, Clayton West, and Huddersfield, and then settled at Kilburn, where he was physician to the Kilburn and St. John's Wood Dispensary. Afterwards he became consulting physician to the Willesden Hospital, and was appointed a justice of the peace for Middlesex. Moving to Upminster, in Essex, he was attached to institutions in the neighbourhood, but for the last few years had been living in retirement.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

THE SUMMER ADJOURNMENT.

PARLIAMENT adjourned on Friday, July 29th, for the summer recess. Both Houses will reassemble on Tuesday, November 8th. Among the measures to which the Royal Assent was given by Royal Commission were the following: The Finance Act; the Diseases of Animals Act; the Poor Law Act; the Midwives and Maternity Homes (Scotland) Act; the Trade Disputes and Trade Unions Act; the St. Mary's Hospital (Newcastle-upon-Tyne) Act; and the Workmen's Compensation (Transfer of Funds) Act. Much information of medical interest was elicited during the concluding days of the session, some of which has been unavoidably held over until our next issue.

HOUSE OF COMMONS.

WEDNESDAY, JULY 20TH.

Treatment of Mental Patients in the Sudan.

Mr. PETHICK-LAWRENCE asked the Secretary of State for Foreign Affairs what facilities existed in the Sudan for the detention and treatment of persons certified as insane; and whether it was the practice in the Sudan to detain such persons in ordinary prisons.—Mr. LOCKER-LAMPSON (Under Secretary for Foreign Affairs) replied: I understand that there are no regular lunatic asylums in the Sudan, but that as regards Europeans mild cases of insanity are dealt with in the hospitals, while violent or dangerous cases are sent to Cairo as soon as possible, being housed in such accommodation as may be available en route, and being admitted to an institution on arrival there. Cases of insanity amongst the Sudanese are always, when possible, sent to their homes, recourse being only had to hospitals, prisons, or such accommodation as is available locally in violent or dangerous cases.

Accident at Liquid Air Company's Works.

Mr. DAY asked the Home Secretary whether his attention had been drawn to an incident which happened to an oxygen receiver belonging to the Liquid Air Company at the Bolton super-heater works, Adswood, in which two men lost their lives; and whether the officers of his department were investigating this occurrence.—Captain HACKING replied: Yes, Sir. The circumstances of this accident have been carefully investigated by the Factory Department. Their report shows that it was caused by the clothing of the two unfortunate men catching fire when they were inside the receiver. There was no sign, however, of any explosion, and it has not been possible to obtain any definite evidence as to how the fire originated. Inquiry will be made into the practice in other works where similar plant is in use with a view to considering what precautions are necessary to prevent any such accident in future. This is the first case of the kind that has come to the notice of the department.

THURSDAY, JULY 21ST.

Noise of Motor Traffic.

Sir ROBERT THOMAS asked the Home Secretary whether he was aware that his warning, issued to motorists last year, that they must more effectively silence their machines, had not produced any appreciable diminution in the noisiness of a great many machines; and whether he would take further action in the matter.—Sir W. JOYNSON-HICKS replied: The hon. Member may be interested to know that in the first six months of this year there were over 5700 prosecutions in the Metropolitan Police District. In any event, the police will continue to take such steps as are possible to abate the nuisance in so far as it still exists.

Sir R. THOMAS: Is the right hon. gentleman not aware that these infernal screeching motor syrens are causing intense mental anguish to hundreds of patients in nursing homes in London, and often causes their deaths; and does he not realise that it is necessary to take drastic action?

Sir W. JOYNSON-HICKS: I do not know what more drastic action I can take than to prosecute 5700 people in six months. My definite instruction to the police is at all times to stop the noise of motor-cycles and motor-cars.

Cream and Food Preservative Regulations.

Mr. LAMB asked the Minister of Health whether it was his intention, before enforcing the Public Health (Preservatives, &c., in Food) Regulations in respect to cream, to introduce the legislation necessary to prohibit the reconstitution of cream so as to give the public the same protection as they now enjoyed in the case of milk.—Mr. CHAMBERLAIN replied: I am informed that it is not necessary to introduce legislation for this purpose, as the existing provisions of the Sale of Food and Drugs Acts would prevent the s of reconstituted cream as cream. The Preservatives Re lations will apply to the substitute equally as to genu cream.

The Milk and Dairies Order.

Mr. ALBERT ALEXANDER asked the Minister of Hea whether his attention had been called to the fact th as stated at a meeting of the Great Yarmouth town coun large numbers of milk retailers in the borough of Yarmo had not yet been registered; and what steps he propo to take to see that the Milk and Dairies Order was enforc —Mr. CHAMBERLAIN replied: My attention had not p viously been drawn to this statement, but I am communic ing with the town council on the subject.

Cost of the Public Services.

Mr. BENNETT asked the Secretary to the Treasury amount per head of the population expended in resp of each of the public services undertaken or contribu to by the State in 1913 and in 1926–27 respectively Mr. R. MCNEILL replied: The amounts issued from Exchequer to meet expenditure in the years 1913–14 1926–27, divided by the population, taken as 45,713, (Great Britain and Ireland) for 1913, and 45,227,000 (G Britain and Northern Ireland) for 1926, are as follows:—

—	Exchequer issues.		Per head of population.					
	1913–14.	1926–27.	1913–14.			1926–		
	£ (millions).		£	s.	d.	£	s.	
National Debt Services	24,500	378,584	0	10	9	8	7	
Other Consolidated Fund Services ..	12,823	40,181	0	5	7	0	17	
Army, including Ordnance Factories ..	28,346	43,600	0	12	5	0	19	
Navy	48,833	57,600	1	1	4	1	5	
Air Force	—	15,530		—		0	6	
Civil Estimates ..	53,901	240,486	1	3	7	5	6	
Customs and Excise and Inland Revenue	4,483	11,514	0	2	0	0	5	
Post Office Services ..	24,607	54,900	0	10	9	1	4	
Total	197,493	842,395	4	6	5	18	12	

MONDAY, JULY 25TH.

Social Hygiene in Colonies.

Sir ROBERT NEWMAN asked the Secretary of State for Colonies if he would state what steps had been taken to effect to the recommendation of the Colonial Office Advi Committee on Social Hygiene, in their first report is in 1925, that the Government of the Straits Settlem should at the earliest practicable date suppress all bro whenever their existence was discovered.—Mr. AM replied: I have no recent report bearing on this parti part of the Committee's recommendations, but the w problem is receiving the constant and careful attenti the local government in the light of the Committee's re I would remind my honourable friend that the Comm recognised that it could not fix a limit to the time w would be required for the suppression of all known bro

Mr. CECIL WILSON asked the Secretary of State fo Colonies whether he would consider the calling togeth the Colonial Office Advisory Committee on Social Hy with a request that a report should be prepared and i upon methods of dealing with prostitution in Hong-K the Federated Malay States, Malta, and Cyprus.—M AMERY replied: The question of the reconstitution committee to advise me on this subject is now under sideration, but pending a decision as to this I can gi undertaking as to whether it will be possible to deal wit problems arising in all the dependencies referred to i question.

Civil List Pensions.

Mr. HURD asked the Prime Minister whether, in ord provide adequate State recognition of self-sacrificing devoted services to medicine, science, philosophy, literature, he would arrange for an increase in the Civi pension of about £75 for a person now awarde supplement that sum by some other form of recogniti Mr. CHURCHILL replied: The amount which can b tributed in any year is strictly limited by a stat provisions of the Civil List Act. In present circumst I cannot contemplate the introduction of legislation to that arrangement.

Medical Men and Privilege in the Courts.

Dr. VERNON DAVIES asked the Minister of Health attention had been drawn to the decision of o His Majesty's judges at the Birmingham Assize July 18th, 1927, that there was no privilege for m men to refuse information to the court obtained confide in the treatment of a patient suffering from a part

complaint, in spite of definite assurances in the past by the Ministry of Health that such information would be inviolate; and, as this decision by the learned judge must exercise a deleterious effect upon the detection and treatment of this complaint by preventing sufferers seeking competent medical advice and treatment, what steps he proposed to take to implement the assurances given to such sufferers in the past that the information obtained by submitting themselves to treatment would be kept inviolate; and whether, in view of the importance of removing any obstacle to complete confidence between a patient and his medical adviser in the early stages of this disease, he would inquire into the desirability of introducing legislation to give a doctor the right, at least in the case of this disease, to refuse to give evidence about confidential information obtained from a patient.—Sir KINGSLEY WOOD replied: My right hon. friend's attention has been drawn to this case, and he proposes to give very careful consideration to the points raised by it.

Dr. DAVIES asked if the Minister of Health would bear in mind, when considering this question, that it was a matter dealing with panel patients, and that it might have very deleterious effects on the treatment of disease and lead to a feeling of insecurity both among medical men and their patients.

Sir K. WOOD replied that there were many difficult questions, to which the Minister of Health proposed to give very careful consideration.

Death-rates in West Ham.

Miss LAWRENCE asked the Minister of Health whether he would give the death-rate for 1000 living for the county borough of West Ham for the quarters ended March 30th and June 25th for the years 1926 and 1927.—Sir KINGSLEY WOOD replied: The provisional figures are as follows: For the 13 weeks ended April 3rd, 1926, and April 2nd, 1927, 12·7 and 15·3 respectively; and for the 13 weeks ended July 3rd, 1926, and July 2nd, 1927, 9·9 in each case.

TUESDAY, JULY 26TH.

Deaths in the Chinese Defence Force.

Mr. THOMAS KENNEDY asked the Secretary of State for War the number of members of the Chinese defence force that had died in China this year; the disabilities which were the cause of death; and the number of cases accepted as due to service in which the widows or other dependants had been granted pensions.—Commodore DOUGLAS KING replied: There have been 12 deaths in China among the British troops and two among the Indian troops, not forming part of the permanent establishment there. Eight of the cases were due to illness and the rest to accidents or wounds. In 11 of the 12 British cases there was no widow, and no claim has been received for dependant's pension. The twelfth case, which occurred at the end of June, is at present under consideration. I will ask my noble friend the Secretary of State for India, to ascertain whether any pension is being granted in either of the Indian cases and to communicate direct to the hon. Member the result of his inquiry.

Slum Clearances in Glasgow.

Mr. STEPHEN asked the Secretary of State for Scotland what steps had been taken by the Glasgow local authority in accordance with their statutory powers, to require the owners to make habitable the 1300 houses in the Camlachie Parliamentary division of Glasgow, which had been declared by the sanitary authority as unfit for human habitation, until new houses could be provided for the people concerned.—Mr. CHAMBERLAIN replied: The subject to which the hon. Member refers was considered by the consultative council at their meeting on July 21st. I am informed that they desire to give the matter further consideration before communicating to me their final views.

Plague Infection in the Port of London.

Mr. BENJAMIN SMITH asked the Minister of Health if he was aware that the ss. *Biela* and the ss. *Isapo*, now in the port of London with a cargo of grain, had been certified by the port sanitary authority to be suspect of containing vermin infected with bubonic plague; what steps he proposed to take to prevent the spread of infection; was he aware that three ships, the ss. *King Frederick*, the s. *Rossetti*, and the ss. *St. Holdsworth*, now in the port, were suspect of carrying vermin infected with bubonic plague; and what steps he proposed to take to prevent steamers from entering the river or docks of the port of London without examination, and to cause them, if discovered to be infected, to be placed under quarantine, and have all necessary precautions taken to prevent the carrying of the disease into the port.—Sir KINGSLEY WOOD replied: The answer to the first part of the question is in the affirmative, and to the third part in the negative. As regards the second part, as the hon. Member is aware, the port sanitary authority are responsible for the measures taken to prevent the spread of infection, and all necessary measures appear to have been taken in the case of the two ships mentioned in the first part of the question. As regards the fourth part, I am informed that all vessels from South American ports, bound for the port of London, are boarded at Gravesend, and that vessels from these ports carrying grain are at present receiving special attention. I think the hon. Member may rest assured that the port sanitary authority will take all necessary precautions to prevent the spread of infection.

Mr. B. SMITH asked whether the risk of infection did not reside, even after fumigation, in the carcase of the rat, which was sucked up in the suckers, distributed to various parts of London and ultimately sold as bread, mostly to poor people.

Sir K. WOOD: I hope that is not the case, but I can assure the hon. Member that precautions are being taken.

Mr. GOSLING asked if the hon. Member was satisfied, apart from what the port sanitary authority informed him, that he was safeguarding the people in the congested areas in the East End from this plague being carried ashore. There would be a great danger if it got into the port, and if it did so how was he going to stop it.

Sir K. WOOD: I can quite understand the natural apprehension arising in regard to the facts of this case, but I can assure the hon. Member that every step that is possible is being promptly, and I believe efficiently, taken.

Mr. SEXTON asked whether it was possible to insist that the grain should be carefully examined before it went into the bags in order to see that no dead bodies got mixed up with it during the discharge from the ship.

Sir K. WOOD: The hon. Member can rely upon it that his suggestion will be considered. I do not think that any unnecessary apprehension need arise, because I believe that effectual steps are being taken to deal with the situation.

Mr. BENJAMIN SMITH asked the President of the Board of Trade what precautionary measures were taken to prevent foreign countries shipping cereals, to which vermin infected with disease had access, on steamers loading for this country.—Sir KINGSLEY WOOD replied: In the case of foreign countries which have ratified the International Sanitary Convention of 1912, the port sanitary authorities of plague-infected ports are required to take effectual measures to prevent rats gaining access to ships.

Medical Examinations of Prisoners.

Mr. RHYS DAVIES asked the Home Secretary whether he was aware that, in accordance with a Home Office regulation, a person who was arrested for being drunk whilst in charge of a vehicle and who demanded to be examined by his own doctor, was not allowed to be so examined in private, the police insisting upon being present; and whether he would give instructions that in such cases the examination should be private, as was the practice in an interview between an accused person and his lawyer.—Sir WILLIAM JOYNSON-HICKS replied: I am aware that the general practice is as stated in the first part of the question and I think this practice is right. I cannot see how the interests of the prisoner can be prejudiced by the presence of a police officer, who may have to give evidence in court with regard to the examination. Interviews with solicitors are obviously on quite a different footing.

Ventilation of the London Tube Railways.

Mr. GILLETT asked the Minister of Transport whether his attention had been called to the recent prolonged stoppages in the London tubes and the discomfort inflicted on the passengers by the want of sufficient air; and whether he would take steps with a view to seeing what could be done to improve the ventilation.—Colonel WILFRID ASHLEY replied: I am in communication with the London Electric Company with regard to the question of the ventilation of tube railways.

WEDNESDAY, JULY 27TH.

Fishermen and Health Insurance.

Mr. ERNEST BROWN asked the Prime Minister whether an amending Bill for health insurance was in preparation; if so, whether fishermen were to be included in it; and if it would apply to Scotland.—Mr. CHAMBERLAIN (Minister of Health) replied: As soon as the consideration of the recommendations of the recent Royal Commission on National Health Insurance has been completed, it is hoped to introduce the necessary legislation, and the question of the compulsory insurance of share fishermen both in England and Scotland, in so far as they are not already included in the scheme, would be dealt with in such legislation.

Opium Cultivation in India.

Mr. THURTLE asked the Under Secretary of State for India whether he was now in receipt of the full report of the recent conference at Simla on opium cultivation in the Indian States; whether he would inform the House of the main decisions there arrived at; and whether he would

consider the question of publishing the proceedings of the conference in the form of a White Paper, in view of the public interest in the efforts being made to reduce the world production and consumption of opium for other than purely medical purposes.—Earl WINTERTON replied: My noble friend has received a report. The conference recommended that a committee should be formed to conduct a series of local inquiries, in which the States concerned would be associated, and suggested terms of reference covering the following questions: (*a*) the agricultural and financial aspects of the subject, including the possibility of replacing poppy by other crops and the effect of such substitution upon the prosperity of the States and their subjects; (*b*) a searching inquiry into the extent to which opium is consumed, the occasions on which and the purposes for which it is consumed, the manner in which it is prepared for consumption, and its physiological effects upon the consumer (the important question to what extent opium is administered to infants was not lost sight of); (*c*) the amount of the stocks of opium existing in the States and the best means of disposing of them; smuggling and remedies therefor; and, finally, the advisability and practicability of adopting the policy suggested by the Government of India—namely, the discontinuance of cultivation in the States, the purchase of opium by the States from the Government factory at Ghazipur at cost price and a gradual enhancement of the selling price of opium in the States, so as ultimately to equalise it with that prevailing in the adjoining British districts, and thereby to remove the incentive to smuggling into British India and reduce the average rate of consumption in the States. It is not proposed to publish a White Paper on the subject, but a copy of a communiqué issued in India regarding the proceedings is being placed in the library.

Death of a Woman Weaver at Arbroath.

Mr. JOHNSTON asked the Home Secretary whether he had had his attention drawn to the death of a woman weaver in an Arbroath factory; was he aware that this woman was 62 years of age and was engaged, along with another weaver, in lifting a piece of finished cloth weighing 115 lb., that the regulations in the woollen trades forbade women lifting cloth pieces weighing over 50 lb., and that the jury at the inquiry under the Fatal Accidents Act had drawn attention to the dangers of heavy weight-lifting by women; and what steps, if any, he proposed to take.—Captain HACKING (Under Secretary for the Home Office) replied: A report on this case has been called for and when it is received the Home Secretary will go carefully into the matter and communicate the result to the hon. Member.

Lunacy Act Regulations.

Mr. GOSLING asked the Minister of Health if he was aware that the Cobb Committee recommended that Section 79 of the Lunacy Act should be posted up in the rooms where friends came to visit pauper patients; and why this had not been done, so that friends, as well as relatives, might be made aware of the rights conferred on them by the statute.—Mr. CHAMBERLAIN replied: In the opinion of the Board of Control there are serious objections to a general requirement that this section should be posted up in waiting-rooms. The revised rules of the Board of Control, dated Jan. 7th, 1925, provide that:—

"The managers of every institution for lunatics shall, on the admission of every pauper lunatic to an institution for lunatics, send a notice to all persons, whose names appear as relatives or friends of the patients on the statement of particulars accompanying a reception order, as to the times and conditions of visitation; and in such notice shall be embodied the substance of Section 79 of the Lunacy Act, 1890."

THURSDAY, JULY 28TH.

Street Accidents in London.

Mr. DAY asked the Home Secretary the number of accidents, fatal and otherwise, that had taken place in the streets of the metropolitan police district for the month of June, 1927.—Sir W. JOYNSON-HICKS replied: The number of accidents known to the police during the month of June, 1927, is as follows:—

Fatal accidents	92
Non-fatal accidents involving personal injury	4500
Accidents involving damage to property only	5699
Total number of accidents known to the police	10,291

As a result of these accidents the total number of persons killed was 92, and injured 4863.

Surgical and Medical Treatment of Prisoners.

Mr. HAYES asked the Home Secretary the number of persons who were removed from prisons to outside hospitals in order that operations might be performed during the year 1926, and the number of cases of childbirth, if any, that took place inside prisons, including Broadmoor, during the year 1926.—Sir WILLIAM JOYNSON-HICKS replied: Ninety-eight persons were removed from prison during 1926 under Section 17 (6) of the Criminal Justice Administration Act, 1914, for surgical or medical treatment which could not be given in prison. The number of cases of childbirth in prison (including two in the Aylesbury Borstal Institution) during the same year was 18. The corresponding figures for Broadmoor are none and one.

Mr. HAYES: Would an amendment of the law be necessary in order that cases of this character might be treated outside prison?

Sir W. JOYNSON-HICKS: If it were compulsory, yes, an amendment of the law would be necessary. There is always a prerogative which in certain cases is exercised, and in certain cases is not exercised.

Mr. DAY: How many of these 98 people were on parole and how many in custody during the operations?

Sir W. JOYNSON-HICKS: I cannot say without notice. There is provision under the Act for removal to hospital for the purpose of surgical or medical treatment which cannot be given in prison, and there are arrangements made for the persons concerned to go back to prison when the operation is over.

Mr. HAYES asked the Secretary of State for Scotland the number of persons who were removed from prisons to outside hospitals in order that operations might be performed during the year 1926; and the number of cases of childbirth, if any, that took place inside prisons during the year 1926.—Sir JOHN GILMOUR replied: Thirty-one prisoners were removed from Scottish prisons to outside hospitals during the year 1926 for the purpose of undergoing operations. No births took place in Scottish prisons in 1926.

Opium Cultivation in British India.

Mr. BARKER asked the Under Secretary of State for India the amount and value of opium manufactured by the Government of India and sold for exportation each year for the last three years; and whether any part of the opium sold for exportation under the authority of the Government of India was manufactured in the Indian States.—Earl WINTERTON replied: The following table shows the amount and value of opium manufactured by the Government of India sold for exportation in the last three years for which figures are available:—

	Chests of 140 lb. sold.	Amount realised in Rs.
1923	7954	3,13,34,650
1924	7379	2,80,06,775
1925	6119	2,54,35,350

The answer to the second part of the question is in the negative.

Population Statistics.

Mr. BROMLEY asked the Minister of Health the male and female population of England and Wales for 1913, 1919, and 1921 to 1927, respectively.—Mr. CHAMBERLAIN replied: The following is the information asked for:—

England and Wales.

Year.	Population.		Year.	Population.	
	Males.	Females.		Males.	Females.
1913	17,687,000	18,887,000	1924	18,545,000	20,201,000
1919	17,803,000	19,559,000	1925	18,602,000	20,288,000
1921*	18,075,239	19,811,460	1926	18,698,000	20,369,000
1922	18,225,000	19,933,000	1927	18,763,000	20,440,000
1923	18,342,000	20,061,000			

* Census.

With the exception of those for the year 1921, which are Census figures, the above populations are mid-year estimates. Those given for 1927 should be regarded as provisional.

Appointments.

MATHER, A., M.B., Ch.B. Liverp., D.P.H., Assistant Medical Officer of Health for the Maternity and Child Welfare Department of the Warrington Corporation.

MILLER, H., M.B., Ch.B. Glasg., and MUIRHEAD, A. J., M.B., Ch.B. Edin., District Medical Officers (Medical Referees) Scottish Board of Health.

TORRENS, D. F., M.B., B.Ch. Dub., Certifying Surgeon under the Factory and Workshop Acts for Market Rasen District (Lincoln).

WELLS, NESTA H., M.B., Ch.B. Manch., Medical Officer to the Manchester Watch Committee for the Examination of Women Suspects.

West Bromwich and District Hospital: CLOAKE, P. C., M.D., B.S. Lond., D.P.H., D.P.M. Camb., WILSON, M.B., B.S. Lond., Honorary Physicians; LEATHER, J., M.B., B.S. Camb., F.R.C.S. Edin., Honorary Orthopædic Surgeon; GILHESPY, F. B., F.R.F.P.S. Glasg., M.R.C.S., L.R.C.P. Lond., Honorary Ear, Nose and Throat Surgeon,

Vacancies.

For further information refer to the advertisement columns.

Barnsley, Beckett Hospital and Dispensary.—Jun. H.S. £140.
Bath, Royal Mineral Water Hospital.—Res. M.O. At rate of £130.
Bedford County Hospital.—Asst. H.S. At rate of £130.
Birkenhead and Wirral Children's Hospital.—H.S. £100.
Birmingham, Children's Hospital.—Res. M.O. £175.
Birmingham, General Hospital.—Med. Reg. and Res. M.O. £155.
Birmingham, Selly Oak Hospital, &c.—Med. Supt. £1000.
Bradford, Municipal General Hospital, St. Luke's.—H.P.'s and S.'s. Each at rate of £200.
Bristol, Southmead Hospital.—Second Asst. M.O. £200.
Carlisle, Cumberland Infirmary.—H.P. six months and then H.S. for six months. At rate of £155 and £175. Also Jun. H.S. At rate of £135.
Carmarthen, Joint Counties Mental Hospital.—Sen. Asst. M.O. £450.
City of London Maternity Hospital, City-road, E.C.—Registrar. £100.
Coventry and Warwickshire Hospital.—Two Res. H.S.'s. Each £125.
Doncaster Royal Infirmary and Dispensary.—Third H.S. At rate of £150.
Dunedin, New Zealand, University of Otago.—Sen. Demonstrator in Dept. of Pathology. £400–£500.
Fareham, Hants, Knowle Mental Hospital.—Sen. Asst. M.O. £700.
Fiji Government.—Dist. M.O. £500.
Greenock Corporation.—M.O.H. £1000.
Guildford Borough, &c.—M.O. £800.
Hereford, Herefordshire General Hospital.—H.S. £150.
Hull Royal Infirmary.—Asst. H.S. £150.
Infants Hospital, Vincent-square, Westminster.—Anæsthetist.
Leicester Royal Infirmary.—Surgical Dressers. 10*s.* 6*d.* weekly.
Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O. At rate of £200.
Liverpool Hospital for Diseases of the Heart.—H.P. Also Clin. Assts.
Manchester Ear Hospital, Grosvenor-square,—H.S.
Manor House Hospital, Golders Green, N.W.—H.S. At rate of £200.
Newcastle-upon-Tyne, University of Durham, College of Medicine. Prof. of Anatomy.
Nottingham Children's Hospital.—Res. H.P. At rate of £150.
Nottingham General Hospital.—Res. Cas. O. At rate of £200.
Plymouth, Homœopathic and General Hospital.—H.S. At rate of £100.
Preston and County of Lancaster, Queen Victoria Royal Infirmary. —Hon. Asst. S.
Queen's Hospital for Children, Hackney-road, E.—Cas. O. At rate of £100.
Reading, Royal Berkshire Hospital.—H.S. £150.
Royal College of Physicians.—Milroy Lecturer.
Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. At rate of £150.
Scarborough Hospital and Dispensary.—Two H.S.'s. At rate of £126 each.
Sheffield Royal Hospital.—Res. Surg. O. £200.
West Ham Union.—Two Dist. M.O.'s and Pub. Vaccs. Each £800.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Towcester (Northamptonshire), and Crewkerne (Somersetshire).

Births, Marriages, and Deaths.

BIRTHS.

MARTIN.—On July 26th, the wife of James Purdon Martin, M.D., Corringham-road, N.W., of a son.
MOOR.—On July 28th, at Irton, Westgate-on-Sea, the wife of Dr. Frewen Moor, of a son.

MARRIAGES.

BANES—PERRY.—On July 6th, at St. Clement Danes, Strand, Charles Douglas Banes, M.B., B.S., to Beatrice Mary Perry.
MACDONALD—STUART.—On July 27th, at the Parish Church, Stroud, Alexander John Macdonald, R.E., to Stella Constance Christian Stuart, M.R.C.S., L.R.C.P., daughter of Lt.-Col. and Mrs. D. F. Stuart.

DEATHS.

CLIFFORD.—On July 26th, at a nursing home at Bickley, Kent, Maurice Clifford, M.R.C.S., L.R.C.P., aged 76.
DONKIN.—On July 26th, at Hyde Park-street, W., Sir (Horatio) Bryan Donkin, M.D., F.R.C.P., Consulting Physician to the Westminster Hospital, in his 83rd year.
EDWARDS.—On July 18th, at his residence, 11, Hawkwood-road, Albert Davies Edwards, M.B., B.S. Lond., B.Sc., D.P.H., Medical Officer of Health, Bournemouth, in his 48th year.
FOX.—On July 23rd, suddenly, at Arundel-gardens, W., Dr. Francis Fox, aged 86.
HIRSCH.—On July 28th, at the Temperance Hospital, Dr. Charles Hirsch, of Old Park House, Ifield, Sussex.
LAWSON.—On July 28th, at the London Hospital, Henry Dillon Lawson, L.R.C.P., M.R.C.S., elder son of the late Henry A. Lawson, L.R.C.P. & S. Edin.
VINRACE.—On July 26th, Felix Coulson Vinrace, M.D., F.R.C.S. Eng., of Birmingham, and Moseley.

*N.B.—A fee of 7*s.* 6*d.* is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Comments, and Abstracts.

THE BIRTH CONTROL HANDBILLS OF 1823.

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IN view of the interest taken by THE LANCET in the discussion of the medical aspects of birth control (see the leading article in the issue of May 28th, 1927, and the able critical review by Dr. C. P. Blacker of a recent book on the subject, which review was published in the same number); in view of the increasing attention which has been given by THE LANCET and other medical journals to the technique of contraception and its history; in view of the opinion, which is still very widespread, that the organised birth control movement is of recent origin, it might be profitable to inquire into the nature of an attempt over a hundred years ago to give the general populace, and especially the working classes, access to knowledge on what would now be called birth control—this without the coöperation, for the most part, of the medical profession.

The opinion is still very general that birth control propaganda, so-called, is a social phenomenon which had its beginnings in the last quarter of the nineteenth century. Nothing could be further from the facts. Although it is true that the popular advocacy of birth control, especially on social and economic grounds, was reinforced by the prosecution of Charles Bradlaugh and Annie Besant in 1877 for the publication of Dr. Charles Knowlton's "The Fruits of Philosophy,"[1] it is clear that the decade of the 1820's produced an agitation of singular interest not only to the physician but to the economist and sociologist. Nor did the public demand for information become quiescent between 1830 and 1877; less noisy it did become after the death of Malthus in 1834; but the passing of the figure around whom the population storm raged, the widening of the suffrage and the passage of the New Poor Law merely poured oil on the troubled sea of social difficulties; the propaganda continued, and the distribution of birth control tracts went quietly on.

We shall concern ourselves here with one phase only of the agitation of the 1820's. That phase is the handbill propaganda which seems to have been initiated by Francis Place[2]—by trade a tailor, by avocation a schoolmaster to statesmen. Place, incidentally, was united by the bonds of friendship, and, to a limited extent, by the cords of a common feeling with Thomas Wakley, the medical reformer who founded, and who for a number of years edited, THE LANCET.[3] It should be observed that Place's generalship in supervising the distribution of the broadsheets about to be described was but a small part of an organised, concerted attempt to bring a contraceptive technique to the working classes without extensive aid from the medical profession. We confine ourselves here not simply to the handbills, but limit ourselves to reproducing them and making certain observations on their social, economic and medical implications.

The question of the origin of the method recommended—the moistened sponge—the question as to whether it was introduced from France or independently hit upon here need not detain us. But it may be mentioned in passing that although Place started the rumour that Robert Owen, New Lanark philanthropist, introduced the new preventive check from France[4]; although his statement was repeated by T. J. Wooler, editor of a radical newspaper called the *Black Dwarf*[5]; and although the Owen "anecedote" was reiterated in two separate publications of Richard Carlile[6] (Place's birth control disciple), conclusive evidence has since come to light which would seem to demonstrate that if the sponge, as a contraceptive technique, had a French origin it was *not* introduced into England by Robert Owen.

James Mill, the eminent political economist, had no sooner broached the subject in his Colony article in the Supplement to the *Encyclopedia Britannica*[7] (1818) than the pros and cons of contraception seem to have been discussed in the inner circle of the Benthamite group. Place began his public advocacy of birth control in his "Illustrations and Proofs of the Principle of Population"[8] (1822) but no mention was there made of methods.

It was not until the summer of 1823 that Place initiated a distribution of handbills among the general populace.[9] Copies of these bills are preserved in what is known as the Place Collection at the British Museum.[10] They exist in two forms, printed and manuscript. The three printed forms of the handbills are addressed respectively "To the

Married of Both Sexes," [11] "To the Married of Both Sexes in Genteel Life," [12] and "To the Married of Both Sexes of the Working People." [13] The first two were neatly printed on a single sheet about 5 by 9 in., while the third was a four-page pamphlet approximately 3 by 5¾ in. Still another draft, addressed "to the mature reader of both sexes," [14] is preserved in manuscript on both sides of a single sheet 6½ by 7½ in. The handwriting in this manuscript draft is not that of Francis Place.

Four Handbills.

The handbills read as follows :—

I.

TO THE MARRIED OF BOTH SEXES.

In the present state of society, a great number of persons are compelled to make an appearance, and to live in a stile, which consumes all their incomes, leaving nothing, or next to nothing, as a provision for their children. To such persons a great number of children, is a never failing source of discomfort and apprehension ; of a state of bodily, mental, and pecuniary vexation and suffering, from which there is no escape. This state of things pervades, to a very great extent, that respectable class of society called genteel. To those whose incomes depend on some particular exertion, which cannot be remitted, these distressing circumstances are from various causes, greatly increased. To those who constitute the great mass of the community, whose daily bread is alone procured by daily labour, a large family is almost always the cause of ruin, both of parents and children ; reducing the parents to cheerless, hopeless and irremediable poverty ; depriving the children of those physical, moral, and mental helps which are necessary to enable them to live in comfort, and turning them out at an early age to prey upon the world, or to become the world's prey.

For these general reasons, cognizable by every body, it is of the greatest possible importance that married people should be informed of the methods used to prevent such tremendous evils.

If methods can be pointed out by which all the enjoyments of wedded life may be partaken of without the apprehension of TOO LARGE *a family*, and all its bitter consequences, he surely who points them out, must be a benefactor of mankind. Such at any rate are the motives which govern the writer of this address.

The means of prevention are simple, harmless, and might, but for false delicacy, have been communicated generally. They have long been practised in several parts of the Continent, and experience has proved, that the greatest possible benefits have resulted ; the people in those parts, being in all respects better off, better instructed, more cheerful, and more independent, than those in other parts where the practices have not prevailed to a sufficient extent.

The methods are two, of which the one to be first mentioned seems most likely to succeed in this country as it depends upon the female. It has been successfully resorted to by some of our most eminent physicians, and is confidently recommended by first-rate Accoucheurs, in cases where pregnancy has been found injurious to the health of delicate women. It consists in a piece of sponge, about an inch square, being placed in the vagina previous to coition, and afterwards withdrawn by means of a double twisted thread, or bobbin, attached to it. No injurious consequences can in any way result from its use, neither does it diminish the enjoyment of either party. The sponge should, as a matter of preference, be used rather damp, and when convenient a little warm. It is almost superfluous to add that there may be more pieces than one, and that they should be washed after being used.

The other method resorted to, when from carelessness or other causes the sponge is not at hand, is for the husband to withdraw, previous to emission, so that none of the semen may enter the vagina of his wife. But a little practice and care in the use of the sponge will render all other precautions unnecessary.

II.

TO THE MARRIED OF BOTH SEXES IN GENTEEL LIFE.

Among the many sufferings of married women, as mothers, there are two cases which command the utmost sympathy and commiseration.

The first arises from constitutional peculiarities, or weaknesses.

The second from mal-conformation of the bones of the Pelvis.

Besides these two cases, there is a third case applicable to both sexes : namely, the consequences of having more children than the income of the parents enables them to maintain and educate in a desirable manner.

The first named case produces miscarriages, and brings on a state of existence scarcely endurable. It has caused thousands of respectable women to linger on in pain and apprehension, till at length, death has put an end to their almost inconceivable sufferings.

The second case is always attended with immediate risk of life. Pregnancy never terminates without intense suffering, seldom without the death of the child, frequently with the death of the mother, and sometimes with the death of both mother and child.

The third case is by far the most common, and the most open to general observation. In the middle ranks, the most virtuous and praiseworthy efforts are perpetually made to keep up the respectability of the family ; but a continual increase of children gradually yet certainly renders every effort to prevent degradation unavailing, it paralizes by rendering hopeless all exertion, and the family sinks into poverty and despair. Thus is engendered and perpetuated a hideous mass of misery.

The knowledge of what awaits them deters vast numbers of young men from marrying and causes them to spend the best portion of their lives in a state of debauchery, utterly incompatible with the honourable and honest feelings which should be the characteristic of young men. The treachery, duplicity, and hypocrisy, they use towards their friends and the unfortunate victims of their seductions, while they devote a large number of females to the most dreadful of all states which human beings can endure extinguishes in them to a very great extent, all manly, upright notions ; and qualifies them to as great an extent, for the commission of acts which but for these vile practices they would abhor, and thus to an enormous extent is the whole community injured.

Marriage in early life, is the only truly happy state, and if the evil consequences of too large a family did not deter them all men would marry while young, and thus would many lamentable evils be removed from society.

A simple, effectual, and safe means of accomplishing these desirable results has long been known, and to a considerable extent practised in some places. But until lately has been but little known in this country. Accoucheurs of the first respectability and surgeons of great eminence have in some peculiar cases recommended it. Within the last two years, a more extensive knowledge of the process has prevailed and its practice has been more extensively adopted. It is now made public for the benefit of every body. A piece of soft sponge about the size of a small ball attached to a very narrow ribbon and slightly moistened (when convenient) is introduced previous to sexual intercourse, and is afterwards withdrawn, and thus by an easy, simple, cleanly and not indelicate method, no ways injurious to health, not only may much unhappiness and many miseries be prevented, but benefits to an incalculable amount be conferred on society.

III.

TO THE MARRIED OF BOTH SEXES OF THE WORKING PEOPLE.

This paper is addressed to the reasonable and considerate among you, the most numerous and most useful class of society.

It is not intended to produce vice and debauchery, but to destroy vice, and put an end to debauchery.

It is a great truth, often told and never denied, that when there are too many working people in any trade or manufacture they are worse paid than they ought to be paid, and are compelled to work more hours than they ought to work.

When the number of working people in any trade or manufacture, has for some years been too great, wages are reduced very low, and the working people become little better than slaves.

When wages have thus been reduced to a very small sum working people can not longer maintain their children as a good and respectable people wish to maintain their children but are compelled to neglect them ;—to send them to different employments ;—to Mills and Manufactories, at a very early age.

The misery of these poor children cannot be described, and need not be described to you who witness them and deplore them every day of your lives.

Many indeed among you are compelled for a bare subsistence to labour incessantly from the moment you rise in the morning to the moment you lie down again at night, without even the hope of ever being better off.

The sickness of yourselves and your children, the privation and pain and premature death of those you love but cannot cherish as you wish, need only be alluded to. You know all these evils too well.

And, what, you will ask is the remedy ?

How are we to avoid these miseries ?

The answer is short and plain : the means are easy. Do as other people, do, to avoid having more children than they wish to have, and can easily maintain.

What is done by other people is this. A piece of soft sponge is tied by a bobbin or penny ribbon, and inserted just before the sexual intercourse takes place, and is withdrawn again as soon as it has taken place. Many tie a piece of sponge to each end of the ribbon, and they take care not to use the same sponge again until it has been washed.

If the sponge be large enough, that is ; as large as a great walnut, or a small apple, it will prevent conception, and thus without diminishing the pleasures of married life, or doing the least injury to the health of the most delicate woman, both the woman and her husband will be saved from all the misery which having too many children produces.

By limiting the number of children, the wages both of children and of grown up persons will rise ; the hours of working will be no more than they ought to be ; you will have some time for recreation, some means of enjoying yourselves rational, some means as well as some time for your own and your children's moral and religious instruction.

At present every respectable mother trembles for the fate of her daughters as they grow up. Debauchery is always feared. This fear makes many good mothers unhappy. The evil which it comes makes them miserable.

And why is there so much debauchery ? Why such sad consequences ?

Why ? But, because many young men, who fear the consequences which a large family produces, turn to debauchery and destroy their own happiness as well as the happiness of the unfortunate girls with whom they connect themselves.

Other young men, whose moral and religious feelings deter them from this vicious course, marry early and produce large families, which they are utterly unable to maintain. These are the causes of the wretchedness which afflicts you.

But when it has become the custom here as elsewhere, to limit the number of children, so that none need have more than they wish to have, no man will fear to take a wife, all will be married while young—debauchery will diminish—while good moral and religious duties will be promoted.

You cannot fail to see that this address is intended solely for your good. It is quite impossible that those who address you can receive any benefit from it, beyond the satisfaction which every benevolent person, every true christian, must feel at seeing you comfortable, healthy, and happy.

IV.

TO THE MATURE READER OF BOTH SEXES.

The object of this handbill is not to encourage vice and lebauchery: but to prevent misery: not to destroy children nce conceived, as many, and even married women do, to the lestruction of their healths; but to prevent improper and ndesired conceptions, where sexual intercourse is desirable, nd wholesome, and lawful.

To accomplish this important object, an object more important han any other that affects either the society or an individual, ome respectable persons in the metropolis of this country, of oth sexes, among whom are included many medical men of he first rank, have enquired after a means which is here nfolded.

All animal procreation is the result of seminal contact etween the sexes. With mankind and healthy married people, exual intercourse is as unavoidable, as it is wholesome and irtuous. But it is by no means desirable, it is indeed, a ontinued torture, that a married woman should be incessantly reeding or bringing forth children, often unhealthy, and born ith a certainty of death in infancy and nothing but the patients f pain: as often born where there are not the means of whole-ome support: and, what is still worse, where the mother is of a elicate frame, and never can produce healthy children, conception s to her nothing but torture, without even the most distant rospect of pleasure or utility. Every reader will be able to ook round and see an abundance of such of each of the cases ere stated.

The remedy then is one, and only one, and that most simple, ithout even a shade of impropriety—conceptions should be revented by the female, by absorbing the semen of the male ith a small bit of moistened spunge, or with any other bsorbing substance, such as lint, fine wool, cotton, flax, or hat may be at hand, instead of allowing that semen to be bsorbed by those vessels which lead to conceptions. Once ractised, all idea of indelicacy or inconvenience will vanish. he practise has long and wisely existed on the continent of urope, and every where the best effects arise from it. It is lone applicable to married and to virtuous people, and to healthy nd pure intercourse.

Comments on the Handbills.

Interesting comparisons may be made of these handbills. irst, as to methods recommended: the form first roduced here (which was the first actually issued) ientions *coitus interruptus* as well as the sponge; the second nd third refer only to the latter, while the manuscript raft recommends, as an alternative to the "moistened punge," a tampon of "lint, fine wool, cotton, flax, or what ay be at hand." As might be expected from such an arly attempt, a physiological naivité pervades the bills. Ve are informed in the first that "the use of the sponge will nder all other precautions unnecessary"; the third nforms us that "the means of preventing conception re easy." There is no suggestion in this or any of the ther literature of the period that the methods proposed are ot "fool-proof." In the bill addressed "To the Married of oth Sexes in Genteel Life" (second form), we have an rly mention, possibly the first mention, of two medical dications for contraception—contracted pelvic condition nd constitutional weakness. I say it is *possible* that this the first mention of these medical indications for ntraception; I think it is quite *likely* that they have no ntecedents. It has, of course, been known for centuries at a narrow pelvis increased the dangers of parturition, t the handbill referred to seems to contain the first reference these or other conditions as medical indications for *ntraception.*

From the social and economic point of view the case for ntraception is much weaker in the first bill than in the vo succeeding ones. The second form suggests that ntraception might be used to advantage to maintain one's ation in life, or in the circumstance of a low family income. oreover, it is not altogether unworthy of note that these *ay be*—no one can say conclusively that they *are*—among e chief reasons why contraception is being so widely plied today. The fact that more or less effective methods e at hand together with the realisation, first observed in e economic writings of the ancients and early Hebrews, at human wants expand faster than incomes has obably had much influence upon the readiness with which ch practices have been adopted. In the bills which re issued later we have the economic case for birth ntrol set forth more clearly. In fact, the chief arguments opounded for birth control in this period were economic. ntral among them were deductions from the wages-fund eory which was supposed to mete out to the labourers eir just wages in the stern, harsh ratio of numbers to pital. Even if the wages-fund be considered Place's vourite foundation for the preventive check, he fortunately ttressed his appeal in his authentic writings with other edical, social, and economic considerations. He did not glect health conditions and the intangible but nevertheless portant factor of marital adjustment. There is a ggestion of the wages-fund argument in the handbill dress to the "working people" but, in addition, it is ged that the check on large families will raise wages by rtailing the supply of labour; that it will shorten hours resumably by increasing labours' bargaining power), and that it will open up to the working classes new possibilities for leisure with all the social consequences which might reasonably be expected to result from the profitable employment of such leisure. It is in both the later drafts that we have one of the earliest uses of the argument of birth controllers that the paramount objection to the Malthusian doctrine of "moral restraint" is that, other things being equal, irregular unions are likely to be more frequent in a society where marriages are, in general, late than in a society where there is widespread early marriage with a consequent adoption of contraception. Since it is not our purpose to examine the validity of any of these observations, we pass on to point out that the handbill addressed "To the Married of Both Sexes of the Working People" suggests an argument heard much in America, but not so frequently in this country, that large families are a cause of child labour. It is probably true that large families and child labour tend to go together; but whether the large families cause, or contribute to cause, child labour, or whether in some cases children are raised partly with the idea that their labour will be valuable is a debatable point. My own opinion is that large families are a contributory, causative factor in child labour and its continuation. So much for certain social observations which might be made on the handbills.

Although the fourth, manuscript of a handbill addressed "to the mature reader of both sexes" was never printed and distributed [15] it contains an interesting variation of statement which throws light on the relation of the medical profession to this early propaganda. It advises us that "some respectable persons in the metropolis of this country, of both sexes, among whom are included many medical men of the first rank, have inquired after a means which is here unfolded." It is true that this is the only straightforward statement in the literature of the period which *directly* associates any medical men with the *initiation or conduct* of the propaganda; but it is also interesting to note that Place sought medical advice and opinion on the subject of birth control. Unlike some modern birth control propagandists Francis Place had a research attitude; he had an Aristotelian penchant for fact collecting. Hence we find him writing to his friend Maclaren, "I have taken pains in my enquiries on this subject . . . amongst surgical and medical as [well as] amongst intelligent elderly women, and especially with two respectably clever women who are or were matrons at public lying-in hospitals." [16] Thus although there is no *record* of physicians having taken any active part in the *propaganda*, they seem to have had an indirect hand in fostering this reform. Indeed, speaking of the method proposed, the second handbill avers that "Accoucheurs of the first respectability and surgeons of great eminence have in some peculiar cases recommended it," while a similar statement appears in the first handbill.

The exact extent of the distribution of these bills is unknown. While it is easy to exaggerate their influence and the extent of their dissemination, it is clear that they were broadcasted in the provinces as well as in London. Judging by manuscript drafts of letters preserved by Place, he was instrumental in sending to Manchester, care of Mr. Edward Taylor, editor of the *Manchester Guardian*, a parcel of handbills with a letter requesting that he forward them to a Mrs. Fildes whose efforts in behalf of the working classes were well known. A note accompanied the package asking Mrs. Fildes to distribute them; highly offended, she urged Sir Henry Gifford, the Attorney-General, to prosecute but he failed to do so. Another letter of objection from Mrs. Fildes led to their publication, however, in the *Black Dwarf*, which was hostile to the distribution. Copies, nevertheless, seem to have been distributed in Manchester, if not by Mrs. Fildes, then through the instrumentality of William Longson, a journeyman weaver for whom Place at that time had done essential service. Place sent Longson handbills with a letter urging him to use them to lessen the burden of pauperism in the community. One gathers from certain mid-century Manchester newspapers recalling the early propaganda that the handbills received considerable circulation in that community. They were distributed among the Spitalfield weavers. The industrial districts were not immune to them.[17] They were sent to gentlemen who gave evidence before a Parliamentary committee on labourers' wages.[18]

This is not the place to record the "scandals" and exposures which followed, but it needs to be observed that it was not long before Place was publicly dubbed "the master spring that moves the whole infernal machine." [19] Indeed, such he was. But since we have confined ourselves here to one aspect only of the "diabolical handbills," which was, in turn, only a part of this attempt to get contraceptive knowledge to the working classes, space does not permit us to show the extent to which Place inspired and conducted discussions of the subject in working men's newspapers, how he brought several religious and political reformers to his point of view, and how, by his conversion of Richard Carlile, he set in motion that whole chain of forces which has been mainly responsible for the spread among the general populace,

both in England and in America, of a knowledge of contraception. But we should like to point out, in concluding, that it is to no small degree a consequence of the social forces released through Place, and reinforced by his disciples in England and America—a chain of events clearly traceable—that we owe our present and past decline in the birth-rate in both countries, a decline which constitutes one of the most revolutionary social changes of modern times.

References.

1. The Fruits of Philosophy; or, the private companion of young married people by Charles Knowlton, M.D., was the first book on birth control ever written by an American physician and the second American treatise on the subject—Robert Dale Owen's Moral Physiology; or, a brief and plain treatise on the population question (N.Y. 1830) having been the first. Knowlton's little book (it was 32 mo.) was originally published anonymously in N.Y. in January, 1832, a second edition with additions appearing in Boston in 1833. It was reprinted in England about 1834 and sold undisturbed for 40 years in various editions before the sensational trial of the 'seventies. Bradlaugh and Besant changed the title of their edition (Freethought Publishing Co.) to the following: The Fruits of Philosophy. An Essay on the Population Question.
2. The best biography is Graham Wallas's The Life of Francis Place. The Dictionary of National Biography has a brief but admirable account by the same author.
3. Sir Squire Sprigge: The Life and Times of Thomas Wakley, London, 1897.
4. MSS. letters in Place Collection at Hendon, vol. lxviii., p. 105.
5. Black Dwarf, vol., xi., pp. 499–500 (Oct. 1st, 1823).
6. Republican, vol. xi., No. 18, p. 556 (May 6th, 1825); cf. also Every Woman's Book; or, What is Love? London: R. Carlile, 1826, p. 24, fourth edition. No. 18 of the Republican was entirely devoted to Richard Carlile's essay on What is Love? except for a few pages. It is the first treatise exclusively devoted to a medical, social, and economic discussion of birth control in the English language and is more or less the parent of the chief birth control tracts of the nineteenth century. The essay was republished in somewhat altered form in February, 1826, as Every Woman's Book; or, What is Love? of which but one authentic copy is extant, to my knowledge, in any of the chief repositories in England or America. Francis Place, as is erroneously stated by Dr. Marie Stopes (Contraception: its Theory, History and Practice, p. 269), was not the author of What is Love?; nor was Place the author of Every Woman's Book. Place, far from being its author, actually did his utmost to dissuade Carlile from publishing it. Place may have disapproved of the vulgarity which characterised the publication, but it is more probable that he felt Carlile might wisely keep out of print until he had mastered the subject.
7. Place arranged for reprinting it as a tract; it was later bound with the reprints of James Mills' other contributions to the encyclopædia.
8. Illustrations and Proofs of the Principle of Population: including an examination of the proposed remedies of Mr. Malthus, and a reply to the objections of Mr. Godwin and others. London, 1822. See especially Section III. of Chapter V.
9. James A. Field: The Early Propagandist Movement in English Population Theory, Bulletin American Economic Association, fourth series, 1911, vol. i., pp. 207–236.
10. The materials originally collected and owned by Place are divided between the Reading Room, the Manuscript Reader's Room, and the Hendon newspaper repository. Except for stray volumes it comprises approximately 250 large tomes. Citations from volumes at Hendon are herein referred to as Hendon, followed by the volume and page numbers.
11. Hendon, vol. lxi., Part II., p. 43.
12. Loc. cit. 13. Ibid., p. 42.
14. Hendon, vol. lxviii., p. 103. At the botton of the second page of this manuscript are the words "Benjamin Aimé" in Place's handwriting and familiar ink, as if to indicate authorship by his customary method. Field, in the only accurate and authentic account of this propaganda (cited above; cf. footnote 9) observed that the Triennial Directory (London, 1822) listed Benjamin Aime (without the accent) as a musical instrument-maker. The name, however, occurs so frequently in Place's diary *with* the accent that it would seem either: (1) that the directory was inaccurate, or (2) that Place had reference to someone other than the instrument-maker. One Aimé frequently called upon Place with French books, especially at the time when Carlile was seeking Place's advice on Every Woman's Book.
15. One or more of the handbills were printed in several journals of the time, but in no case did the manuscript form ever appear. In fact, Carlile, in May, 1825, stated that he had seen only two forms. (Republican, vol. xi., p. 561.)
16. Place to Maclaren, Hendon, vol. lxii., p. 163. Richard Carlile said he "studied anatomy in the regular way" (Old Monthly Magazine, May, 1835). The evidence of Place's fact-collecting propensities are the 250 tomes in the British Museum. His "Notes on Surgery and Medicine" are to be found in Add. MSS. 27, 828 (vol. iv.), section 5.
17. See the letter of William Smith of Bolton to Place in Hendon, vol. lxi., Part II., p. 60, quoted in part by Field, ibid., p. 225. Carlile said that they circulated by thousands in the populous districts of the North. (Republican, vol. xi., p. 555.)
18. Hendon, vol. lxviii., p. 119. 19. Bull Dog, pp. 109.

SUBSTITUTES FOR WINDOW GLASS.

APART from the beneficial effects of the sun's rays in actu disease the prophylactic use of sunlight becomes increasing important as towns expand and open spaces disappe The difficulty of providing buildings with windows that w not seriously cut down the shorter rays of the sun's spectru has now been tackled both in a scientific and commerc manner, with the result that for glazing windows materi are now available which are satisfactorily transparent r only to the visible but to the ultra-violet rays of sunligh

A report published in the *Journal of the American Medi Association* of May 14th, under the ægis of the Associatio Council of Physical Therapy, may be taken as a scienti assay of the substitutes for window glass available in t United States. The report deals with two actual glas (Vitaglass and Corning glass) and two glass substitu (Celoglass and Flexoglass). Of Vitaglass there are two kin clear and "cathedral" (the latter being a merely transluce form), and these varieties are presumably the same as th sold in this country. Corning glass transmits 75 per cent. the shortest rays of the solar spectrum (3000 A.U.), whi Vitaglass transmits 30 per cent. of the same wave-leng ordinary glass being quite opaque to this part of spectrum. Since it is the shorter wave-length rays that ha the greatest biological value, both these special glasses be valuable where the object is to get the full physiologi value of sunlight.

Flexoglass is described as thin, fairly loosely woven cl impregnated with a paraffin-like substance; Celoglass fine wire mesh supporting a celluloidinous substance, an apparently similar to the material sold in this country un the name of Windolite. Both these substitutes allov certain proportion of the actinic rays to pass, but as t are of variable thickness and diffusing power, it is impossi to record their transmission spectra with the same accur as that of a true glass.

In view of the well-established fact that it is the sho ultra-violet rays of sunlight that make heliotherapy valu in the prophylaxis and cure of rickets, it seems ha necessary to have tested the value of these glass substit biologically. The report, however, furnishes the confirma evidence that when these materials were arranged as scr in front of experimental cages, fowls so screened v protected from "leg weakness," the avian equivalen rickets. Corning glass was not tested in this way, bu view of its marked transparency to the ultra-violet ray about 3000 A.U. it may be confidently supposed that it i least as efficient as the other materials tested.

FOAMING AT THE MOUTH.

CORRESPONDENTS have sent us "A Talk on Fraud Bread," by Mr. Ellis Barker, and have asked us if observer is correct in saying: "Unfortunately, most do know nothing or next to nothing about dietetics and themselves die like flies from diseases consequent faulty nutrition." Mr. Ellis Barker states in the sentence to this quotation that he has already shown things to be true, from which it must be concluded he has had access to vital statistics with which other unfamiliar, though it need not be assumed that he understood them. The best advice that medical men give to those who are perturbed by such articles is they should insist on being informed on what basis of or on what accepted doctrines of chemistry whol accusations of ignorance and fraud are being made; should ask to be supplied with the names and address the chemical manufacturers "who are spreading dis suffering, and death among millions," and the names burial-places of the doctors who have died in epi proportions of nutritional diseases. Some names shou forthcoming both from a class which can slay by mi and a profession which is dying like flies.

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Notifications.—The following cases of infec disease were notified during the week:—Small 195 (last week 156); scarlet fever, 1575; diphth 852; enteric fever, 132; pneumonia, 612; puer fever, 36; puerperal pyrexia, 98; cerebro-s fever, 7; acute poliomyelitis, 10; acute encephalitis, 1; encephalitis lethargica, 35; dysen 6; ophthalmia neonatorum, 95. There were no ca cholera, plague, or typhus fever noified during the

Deaths.—In the aggregate of great towns, incl London, there was no death from small-pox, from enteric fever, 29 (3) from measles, 3 (3) scarlet fever, 24 (4) from whooping-cough, 3 from diphtheria, 38 (7) from diarrhœa and ent under two years, and 25 (4) from influenza. figures in parentheses are those for London itself

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). 5424. LONDON, SATURDAY, AUGUST 13, 1927. CCXIII.

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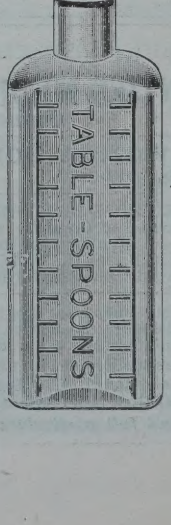

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Arris and Gale Lecture

ON THE

TOXÆMIA OF ACUTE INTESTINAL OBSTRUCTION.

Delivered at the Royal College of Surgeons of England on March 18th, 1927,

BY R. ST. LEGER BROCKMAN, M.CHIR. CAMB., F.R.C.S. ENG.,

ASSISTANT SURGEON, SHEFFIELD ROYAL INFIRMARY; LATE HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS.

MODERN surgery has reached a high pinnacle of fame and perfection, and whilst its achievements in many branches may justify a large measure of pride and of hope, the almost stationary rate of mortality in acute obstruction wrings from all of us a confession of the failure of present modes of treatment, and further it forces an acknowledgment of the fallacy of the basic ideas from which these methods spring. In the struggle to right the wrong in the bodies of his fellow-men the operating surgeon depends for his increasing knowledge and inspiration upon two main sources of supply; the lessons of clinical work as judged by results and the light gained from experiments on animals. Confronted by undoubted failure it behoves us at the outset carefully to examine the use made of these founts of learning and thereby to see if possible where and why we have gone astray.

The forward march of operative technique has been so astounding and so rapid that our perspective of what surgery really is has been thrown out of alignment; and our judgment of what it can in truth perform has become somewhat biased. It can do and has done so much that it has rather been expected to do all. On analysis surgery is of the mechanical *mechanical*, and its lasting kingdom can only be in those realms of disease which have an origin fundamentally mechanic. It is true that the cause of acute obstruction is of this nature, but the cause of ileus is not, since this can and does appear in peritonitis, in uræmia, and in other pathological states devoid of any mechanical interference with the proper working of physiological processes. Organic obstruction is one thing which must ever be submitted to manual repair, but ileus is always ileus; it is always paralytic in nature, and has a much more fundamental basis of being, and in its cure surgery can, I believe, have no real part. It is for this reason that enterostomy, enteroanastomosis, jejunostomy, and the like procedures have so signally failed us in our efforts to cope with this condition. From a realisation of this impotence there goes up the cry for earlier diagnosis as the only means of escape. From the viewpoint of scientific advancement it is a cry of despairing ignorance, but from that of clinical surgery it is truth; for instrumental methods will never be able to do more than put right the mechanical upset before the serious onset of ileus. Also, however early the diagnosis may be made in cases of organic obstruction, there will yet remain the paralytic ileus of metabolic origin, still as deadly as ever and still as misunderstood.

Animal experiments have produced many theories in explanation of the toxæmia of this condition. Their number and variety are alone sufficient proof of their fallacy. In turn there have been suggested intestinal decomposition, bacteræmia, the proteose level of the duodenum; autolysis of mucosa, interference with circulation or with nervous reflexes. These and others have one point in common which stands out clearly on close investigation; each and all must be the result of some basic upset of physiology, itself the prime moving cause.

THE BASIC CAUSE OF ILEUS.

There are, however, two views on this subject which are much to the fore at the present time, the action of bacteria, especially of the anaerobic variety, and the toxic element found in obstruction fluid. A careful analysis of these will, I think, take us some way along the road in our search for a more basic cause of ileus.

In 1882 Koch discovered the tubercle bacillus, but the disease associated with it still works havoc among the nations. The only reasonable explanation of this must lie in the fact that the organism is not of itself the first cause of the disease. This must primarily be due to some upset of normal physiology, to some discord in the harmony of health which allows the organism free play. This is true of all pathogenic bacteria. What of the virulence of these workers of evil in our bodies? Through a series of laboratory subcultures this is lost, and it is restored by passage through a number of living animals. So even the virulence of the organisms is dependent upon some close association with the vital processes of a possible host.

In this light consider the bacterial content of the alimentary canal. In health the upper part is amicrobic, whilst the number and the virulence of the organisms increase along the length of the intestine from above downwards. In obstruction the function of the muscular wall of the intestine is upset from below upwards, and with this procession of loss of normal physiology goes the growth in the number and virulence of the bacteria. In a state of health there is then, according to this argument, some physiological process in the upper portion of the small intestine which is inimical to the life and growth of micro-organisms, and the intensity of this protective action diminishes along the length of the canal. In the general plan of concentration of a particular function in a particular organ, to supply the needs of the whole body, is it possible that this mechanism operates locally in the upper portion of the small intestine for the necessity of the whole organism? Such a theory offers a really basic explanation of the early gravity of high obstruction as compared with one low down, since the higher up the initial site of obstruction is placed, the greater will be the loss of this vital physiological function at the commencement of the trouble.

In the fluid found in obstructed intestine, whether of organic, paralytic, or experimental origin, there is present a toxic element which on intravenous, intraperitoneal, or subcutaneous injection causes death with symptoms like those of the original disease. There are, moreover, definite findings associated with the death following the injection of this fluid which are seen on post-mortem examination. The gastric mucosa shows marked hæmorrhagic changes; the pylorus stands out by reason of the pale pink colour of the mucous membrane which covers it, whilst just beyond the level of the sphincter there is a sharply drawn line where the dark red injection recommences in the duodenum. Here it is as marked as it is in the gastric mucosa, but the intensity of the damage fades in the lower part of the small intestine. The mucosa of the pylorus seems untouched; no ulcers commence at the pylorus; the whole picture is brimming over with suggestion. There is strong evidence that this poison is not formed in dead tissue but that its production is dependent on the vital activity of the cells. Van Beuren [1] relates the case of a girl who died of ileus 48 hours after an appendicectomy; the fluid from her intestine killed a dog in three and a half hours. For class purposes he made a volvulus in a dog, the animal dying in 18 hours. There had been complete stasis of contents and of circulation since a ligature was tied tightly round the base of the volvulus. The fluid from this gangrenous loop was non-toxic when injected into the veins of another animal. Braeze,[2] in working with a duodenal loop, which could be emptied at will through the abdominal wall, found it was not until after the lapse of about 36 hours that there was a demonstrable amount of toxic substance in the loop fluid. There also appears to be agreement among observers that the degree of

toxicity does not bear any constant relation to the amount of damage sustained by the tissues of the loop. Ellis [3] has succeeded, by extraction with boiling water and the precipitation with alcohol, in isolating a toxic material from obstructed intestine of both organic and paralytic origin. On injection this gave rise to death with symptoms of acute ileus. He has managed to carry the original dose of toxin injected through a series of four dogs—that is to say, a dose of toxin from a case of ileus was injected into the first dog and the extract of the duodenum of this dog after death was put into the second dog and so on. Of this series of four dogs so dealt with, the first three died in the usual way, whilst the fourth, although exhibiting marked symptoms, eventually recovered. Ellis's comments are as follows:—

"These experiments also show that the toxin circulating in the blood stream can apparently excite the cells of the intestinal mucosa to the formation of the poison, for if one considers the small amount of the toxin solution injected, and the large amount of dilution which must occur in the blood stream and in the tissues, and the loss incident to the necessarily crude method used in recovering the toxic element from the intestinal content, then one must conclude that it is not possible that we are dealing with the recovery of the original dose."

Objection has been raised to conclusions drawn from these results of intravenous injections on the ground that this does not occur in actual cases. It is stated with truth that this toxin is not absorbed from healthy intestine, and since its presence cannot be denied, a damage to the mucous membrane has been demanded as a necessity for its absorption. What damages the mucosa? So once again we are forced back to bed rock if we are really to solve the problem in a fashion which will help us in treatment. Now how are we to attempt an explanation of this series of experiments of Ellis?

It appears that a small amount of the toxin injected into an animal is capable of starting a vicious circle which results in death; in the duodenum of such an animal a similar poison is found in increased amounts. The primary dose has resulted in a generation of itself.

EXPERIMENTAL WORK.

Now to turn from the universe of speculation to the closer confines of experimental and clinical facts.

The starting-point of my endeavours in this direction was the work of Whipple and his co-helpers.[4 5 6] These observers isolated a washed loop of the duodenum, thereby excluding any possibility of decomposition of intestinal contents. A ligature was tied round the gut just below the entrance of the bile and pancreatic ducts, whilst a second was placed beyond the duodeno-jejunal flexure. The continuity of the alimentary canal was reconstructed by the performance of a posterior gastro-enterostomy beyond the lower obstructing ligature (Fig. 1). These animals all died within three days at the outside, whilst many of them did not survive longer than 48 hours. The dogs died with symptoms of an acute intoxication, subnormal temperature, fall in blood pressure, and venous congestion. The mucosa and the fluid content of the loop contained a toxic body which caused death in a few hours when injected into another dog. The time of survival depended on whether the fluid was put in by vein, peritoneum, or subcutaneous injection. If Whipple destroyed the mucosa by means of a chemical such as sodium fluoride, prior to isolating the loop, he could no longer find any toxic substance in the fluid. Having excluded all food remnants and the digestive juices of the liver and pancreas, he concluded that the poison was formed by the action of the bacteria on the cells of the mucous membrane, and that on absorption into the circulation it caused the death of the animal. Now it has been shown that an animal can live for weeks or even months with a similar loop formed in the lower ileum or colon.[7] It is hard to explain how the bacteria-laden loop of the lower bowel is thus innocuous whilst that of the previously sterile duodenum is so rapidly fatal, if the bacteria really do play a primary part in the formation of this poison. So once again we are thrown back on the mucosa of the duodenum and some upset of its normal functioning.

In the first place I repeated the exact procedure of Whipple (Fig. 1). To obtain a complete closure of the lumen of the intestine without cutting through into the interior of the gut I used, as did Whipple, a thick strand of string (Fig. 2). This was tied as tightly as possible, and then it was buried by bringing the peritoneum of the intestine above and below together with a continuous Lembert suture. I have performed this operation without any additions or subtractions on three dogs. The animals all died as Whipple describes within 36 hours. There is, however, one feature of their death which is worth noticing. In the case of two of these dogs I saw the animals within 10 and within 15 minutes of death respectively. They were obviously very ill, very toxic, and vomiting persistently. When I called to them, however, they had strength to get up on their feet and walk across the cage to me, and when I patted them they were sensible enough to wag their tails. Yet within those few minutes they were dead. Something had suddenly failed and the vital processes had stopped. It is not absolutely unlike what happens at times in the clinical experience of us all. The condition of a patient, after an apparently successful operation for acute obstruction, suddenly changes, and he dies rapidly without exhibiting any obvious cause which we feel we can put a finger on. The whole suddenness of the change and the rapidity of the passage of subsequent events forces the conclusion that some vital reaction was at this stage suddenly interfered with.

Since all observers have secured the same results in this operation the actual facts cannot be controverted. The conclusion which Whipple drew from them has in no wise helped us to abate the ravages of death in this condition. The only reason for this must be that though the facts were correct the conclusion drawn was wrong and the cause of death was not as he thought.

Let us carefully consider what exactly it was that Whipple did (Fig. 1). He put a large portion of the duodenum out of action, converting it into obstructed intestine. But he did much more; he obstructed the remaining part of the duodenum above his first ligature together with some portion of the stomach. Whipple claimed that the loop poison was the cause of death. It was at once apparent that it was possible to keep the loop intact and yet to eliminate the further upset of the alimentary canal which I have indicated. By performing a lateral anastomosis immediately above and below the two ligatures the loop is left exactly as before, whilst the continuity of the rest of the intestinal track is secured. (Fig. 3.) One dog, which had had this operation performed, was very much alive and able to take a keen interest in what went on around him ten days after this obstruction of the duodenal loop had been brought about. All the other dogs treated after the manner of Whipple have died in under three days, but on the fifth day after his operation this dog was busy worrying a dead mouse which he had killed in his cage during the night. Although this animal did not succumb to the loop formation as did the other animals, there were very marked signs that all was not quite well with him. There was great loss of flesh, although after the first 48 hours there was no difficulty in getting him to take a certain amount of milk and starchy foods. He exhibited a curious spasticity of the limbs, especially of the hind legs, and furthermore he could not keep still above a few seconds. This purposeless choreic-like movement is reminiscent of the restless tossing and pulling at the bedclothes which is often such a marked feature of the terminal stages of human cases of ileus. There were no symptoms of the acute intoxication which the other dogs had exhibited and this animal never vomited. On the tenth day just after this photograph had been taken, I killed

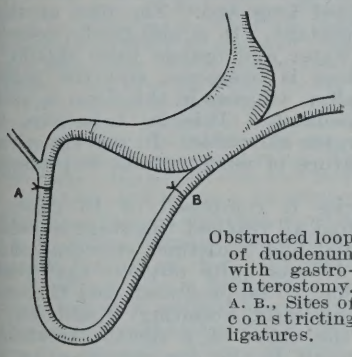
the animal and immediately did a post-mortem examination. The peritoneal cavity was dry and clean. The site of the operative procedures was still clothed with the omentum which had been laid round it at the time of operation. The lateral anastomosis was functioning perfectly and bile-stained intestinal contents could be seen above and below the opening. The ligatures still completely blocked the lumen of the gut at both ends of the obstructed loop. The interior of the isolated segment of the duodenum was empty of any food content and no trace of bile staining could be seen. This dog was not killed by the presence of the duodenal loop.

A possible argument against this result could be brought on the grounds that the ligatures might have loosened sufficiently to allow fluid to enter or leave the loop even though only in minute quantities. To make certain on this point, in the next dog I completely divided the intestine above and below the two ligatures and invaginated all four ends. By this means the loop was entirely cut off from the rest of the gut whilst the blood and nerve supply remained intact. The lateral anastomosis was completed as before (Fig. 4). An operation was performed on this animal on March 13th. It suffered no acute symptoms, neither did it vomit. It remained well until the afternoon of March 17th—that is, exactly four days after the formation of the loop. In the evening a sudden change came over the dog and it was dead before morning. A post-mortem examination revealed a perforation in the wall of the loop with general peritonitis. It had, however, survived for four days during which time it did not vomit and it exhibited no symptoms of an acute intoxication such as the dogs did after Whipple's operation. It is clear, I think, that this dog did not die as did the dogs in his series. This was killed by an accident which does not always happen. This question of perforation of the loop is interesting. It is something far more subtle than a mere rupture of the intestinal wall due to distension with fluid. To the naked eye it is the most perfect replica imaginable of a perforation of an acute duodenal ulcer, whether viewed from the inside or from without. Another feature which is also at present unexplained is the varying amount of fluid which accumulates in the isolated loop. In one dog the loop will be tense with a watery blood-stained content, whilst in another animal the loop is collapsed and has only a thick paste-like content. The contraction of the loop in this case is not associated with any leakage from a perforation or rupture. It is in absence of active secretion for some reason. These experiments do show, I think, that it was not the loop which killed Whipple's dogs, though there is evidence that it can seriously upset their normal health. It is quite clear at any rate that an isolated loop of duodenum is not incompatible with life over a much longer period of time than his dogs lasted.

There is another series of experiments done by Eisberg,[8] which illustrates the same point though the actual operation was different (Fig. 5). If a simple ligature is placed round the intestine just below the entrance of the bile-duct, the animal dies rapidly, in 36 hours or so, with symptoms of fulminating intoxication. If, however, the obstruction is placed above this entrance, just below the pylorus, the symptom complex is changed and the animal lives for a considerably longer period of time. This difference is markedly exemplified in our clinical experience with man. The case of simple pyloric obstruction lasts for a lengthy period, whilst the occurrence of a vicious circle after a gastro-enterostomy rapidly ends the scene with a picture which is indistinguishable from that of acute ileus. One essential difference in the physiological results of the positions of these obstructions is that in the one the bile has a free and uninterrupted passage along the length of the intestine, whilst in the other it is held up at its origin and is in part lost from the body by vomiting. The same difference exists between the method in which Whipple performed his loop operation and the way in which I did mine. I now assumed for the purpose of experiment that it was essential for life that bile should be in contact with the intestinal mucosa; and the idea occurred to me that it might be possible to get this condition restored in cases of acute ileus by placing bile in contact with the mucous membrane of the rectum.

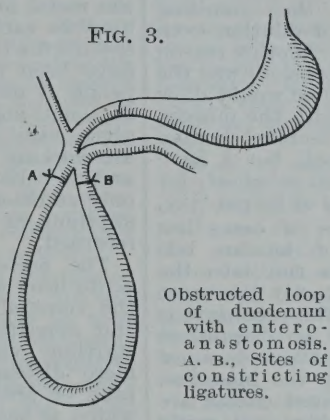
The following question will at once present itself if I have made the argument clear: "How is putting the bile into the rectum going to allow bile to have access to the duodenal mucosa: insistence has been laid on the importance of the function of this portion of the alimentary canal all through, and surely then if bile must be anywhere it is in the duodenum where its presence is vital?" It may be well to state that much remains to be done before the scientific basis of the relief produced in paralytic ileus by the injection of bile can be established. In the present lecture I do not propose to deal with the experimental

FIG. 1.



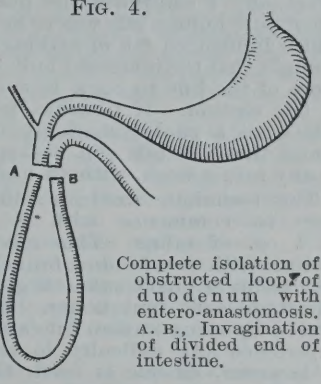
Obstructed loop of duodenum with gastro-enterostomy. A. B., Sites of constricting ligatures.

FIG. 3.



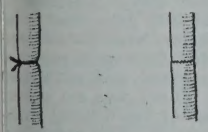
Obstructed loop of duodenum with entero-anastomosis. A. B., Sites of constricting ligatures.

FIG. 4.



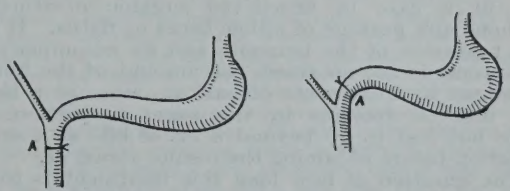
Complete isolation of obstructed loop of duodenum with entero-anastomosis. A. B., Invagination of divided end of intestine.

FIG. 2.



Method of procuring the obstruction.

FIG. 5.



Diagrams illustrating the experiments of Eisberg.

work I have performed to obtain an insight into the mode of action of this therapeutic measure.

I shall briefly describe some of the clinical results of this method of treatment; pointing out the difficulties met with, as well as the successes attained.

METHODS AND TECHNIQUE.

The first time that an opportunity presented itself for trying out my hypothesis, as it then was, I was suddenly confronted with an acute ileus in the case of appendicectomy which had been left in my charge. It happened at a moment when there was no bile available save that which was contained in the patient's own vomit. Thinking that the acid content of the vomits might act as a severe irritant to the rectal mucous membrane I diluted the vomits with normal saline. As this stopped the vomiting effectually I continued the practice of dilution even when pure human bile was to be used. Another reason which influenced me in making this decision, was the thought that the increased bulk of the fluid would allow more of the bile to come in contact with the mucosa of the rectum. If possible, freshly secreted human bile from a cholecystostomy was used, but I have found that the bile can be kept in an ice-chest, for at any rate a week, without losing any of its potency.

The technique used in this series of cases has been to commence with 2 oz. of human bile in 4 oz. of saline. This mixture is run into the rectum with a tube and funnel in exactly the same way as an ordinary saline is given. The procedure is repeated every four hours. There is no discomfort caused by using human bile and the patient does not experience any difficulty in retaining the injection. If however, ox-bile is used, the desired effects are not obtained so easily, nor so quickly, and acute pain of a colicky nature appears; pain so severe as to call for the use of morphia. Also at the end of half an hour or thereabouts the patients often declare that they are forced to return it against all will-power and effort to the contrary. If human bile is now used for such a patient there is no further trouble, the saline is retained with ease and the desired results accrue more rapidly. The same pain was caused by the use of vomited bile in the only case in which this form was employed.

It will at once occur to many that the use of ox-bile as an enema is an ancient practice which has been in large measure discarded. I must say that although the bile is given per rectum it is not as an enema that it works. The results of this treatment which I am about to put before you will follow its use in a case of unrelieved organic obstruction without any passage of either fæces or flatus. If the full remission of the toxæmia and its accompanying symptoms is not obtained, the amount of the bile is increased by increments of half an ounce at a time, the dilution remains in the same proportion. I have not had to go beyond 3 oz. of bile at a single injection before obtaining the results aimed at.

The question of how long this treatment is to be persisted in, is not an easy one to answer in a few words. The work is only in its early stages and much has yet to be learned. It is, however, safe to state that when definite improvement is seen and the bowels have been opened it is safe to ease off the amount of bile. If the vomiting returns it is possible to get the patient under control at once again by increasing the amount of bile to that which previously was efficacious. The histories of the cases will show the difficulties met with in this form of treatment. One of the greatest of these arose from the fact that it is possible to keep a patient fit for days even though there is an unrelieved organic obstruction inside his abdomen. Obviously this result is simply one of cloaking a condition demanding surgical interference. In fact, my experience goes to show that if the vomiting returns on the cessation of the bile, and at the same time the bowels are not open in a satisfactory manner, then the abdomen must be reopened, as it is almost certain that there is a mechanical obstruction present.

In the first cases morphia was used in conjunction with the injection of bile. Those who are acquainted with the writings of Hugh Owen Thomas on the place of this drug in acute obstruction will very naturally suggest that the whole effect is due to the morphia. Repeated injections of morphia were used in only one of these cases in which human bile was the form used. It was afterwards found unnecessary except for special occasions. Opium can, and I think should, be used with discretion, but only after the patient has been got under control with the bile. There is a very distinct danger in using morphia, in a case with an advanced degree of toxæmia, before this has been accomplished. Another possible explanation which I can see may be put forward is that the result is due to the fluid absorbed from the rectal injection. Only 4 oz. of saline have been used in each injection, and if saline in itself is a specific for the toxæmia of acute ileus, this fact would have been recognised long ago. The diet of these people is most important. It is absolutely essential that nothing but water and orange juice should be given until the ileus is overcome and the bowels are working naturally. Glucose in this form is useful and I believe expedient. This is, I believe, the only addition to water allowable. In my experience anything in the nature of meat extract is promptly returned.

The present series is composed of 13 cases of acute ileus which had all reached the stage at which the vomited material had a distinct stercoral odour and appearance. It was quite obvious that really startling evidence had to be produced, and therefore mere distension and mild vomiting would be no kind of proof of the value of a specific treatment which is said to result in the disappearance of the vomiting and other phenomena of acute obstruction. Also I did not feel justified in testing this method of treatment except in extreme cases for which nothing else could be done.

CLINICAL HISTORIES.

Case Treated with Vomited Bile.

CASE 1.—The patient, a man of some 30 odd years, had a gangrenous appendix removed some days previously, with drainage to the pelvis. His condition gave rise to a good deal of anxiety owing to distension and flatulence. Without any further warning he started to vomit profuse amounts of foul-smelling bile-stained material, and with this there developed a marked hiccough. There was no other form of bile available, so the vomited matter was diluted with saline and put back into the man per rectum. The vomiting stopped forthwith, whilst the spasm of the diaphragm was lessened and had disappeared within 18 hours. The treatment was continued until all the vomitus was used. The injections caused him to suffer intense colicky pain, which had to be controlled with morphia. Within 24 hours the stercoral vomiting had restarted and was again abolished by the same methods. There was no further recurrence, and after a stormy convalescence he recovered without any more ileus.

Case Treated with Human Bile.

CASE 2.—This was a private case in which I had removed a gangrenous but non-perforated appendix within 30 hours of onset. There was a small amount of slightly turbid fluid in the pelvis, and the abdomen was closed without drainage. For the next three days he gave rise to no anxiety, and a fair result was obtained each day with a simple enema. There was a slight amount of flatulent spasm, which would be expected in such a case. On the evening of the third day he was a little distended and vomited once, but only some water which he had taken. An enema resulted in the passage of flatus followed by a small fæcal result. I was sent for in the early hours of the morning and found that he had quite suddenly vomited a large bowlful of stercoral material. He was propped up in the Fowler position hiccoughing persistently. His abdomen was tightly distended, the facial expression drawn and anxious; the pulse was thin and running. Operative measures were quite out of the question; indeed, he looked very near to death. I made the diagnosis of a fulmination of a quiet paralytic ileus. Subsequent events proved me wrong, but an immediate operation would have resulted in death. I put him on four-hourly salines of human bile with ¼ gr. of morphia hypodermically at the same intervals. In view of the acute pain caused by the injection of vomited bile in the previous case, I expected at this stage of my investigations that the same pain would

follow the use of human bile. By the evening he was comfortable though still very distended. He had not vomited since the first bile injection had been given, and the hiccough ceased to worry him within three hours. This course was continued for seven days, during which time he had taken nothing save water with a little orange juice. On the evening of the seventh day I stopped the bile, still continuing the morphia four-hourly. The next morning he again vomited up copious amounts of definitely fæculent material. The bile was restarted and the vomiting again stopped forthwith.

Two days later I stopped the morphia continuing the bile. He still remained comfortable, as the distension had in large measure disappeared and his pulse was 70. His tongue was moist and perfectly clean, though his bowels had not moved for ten days. On the tenth day I ordered two enemas, and as there was no result of any kind I realised that it was not a case of paralytic obstruction. I went in to break the news to him and found him with a soft and only slightly distended abdomen, a pulse of 70, a perfectly clean moist tongue. He was smoking a cigarette and reading a paper. I had great difficulty in persuading the patient to allow me to open his abdomen, as he insisted that he felt perfectly fit and well. Moreover, he looked it. I gave him 3 oz. of bile per rectum half an hour before operation. He gave no trouble to the anæsthetist and did not vomit after the operation. I reopened his abdomen through a small pararectal incision, and found that there was an absolute obstruction by an omental band about six inches from the ileo-cæcal valve. The bile was continued for two days; the bowels were well moved the morning after this operation, and he made an uninterrupted recovery.

This case taught me that morphia was not needed for pain when human bile was being used. It will naturally be asked, but why sit on a case all that time? When bile is being used in a case of organic obstruction such as this the residue of the bile collects in the large bowel and is voided at intervals, especially after an enema. This material looks and smells just like a fluid stool, and in this case it deceived me into thinking that we were gradually overcoming the paralysis since the distension was less. I even had an enema given, the amount injected being measured before and after its return. The volume was always increased after being returned, and it was some time before I hit upon the true explanation. Also I had not yet realised that the abdominal distension went as a result of this treatment without any passage of flatus. It can now be realised that the first steps in the clinical application of this work were beset with many difficulties which did not always allow of a successful ending, as will be seen later.

Since human bile is often difficult to obtain, I decided to try the effect of ox bile. The dose was half the quantity of that employed when human material was used.

Case Treated with Ox Bile.

CASE 3.—A girl, aged 25, had a gangrenous appendix removed on Dec. 19th; the abdomen was closed. Her abdomen was a little distended and she vomited slight amounts on several occasions, but there was no sign of any stercoral odour. On the 24th she was very distended, the outline of the stomach itself being plainly visible below the level of the umbilicus, and the material brought up was of distinctly fæcal odour. As no human bile was procurable she was given 1 oz. of fresh ox bile four-hourly in saline. The vomiting ceased gradually, the abdomen softened, and on the 28th the bile was stopped. Within 12 hours both the distension and the vomiting were worse than ever. The treatment, still with ox bile, was restarted and continued until Jan. 4th, when the distension had almost disappeared, and as the bowels were acting daily the bile was stopped. The subsequent history was one of uninterrupted progress.

It was obvious from this case that although the ox bile did work it was far less efficient than human bile, whilst it caused acute pain which had to be relieved with morphia. It seems that there is some harmful substance in this form of bile which causes these symptoms. The results were not all of this happy nature.

Case in which Ox Bile did not Work.

CASE 4.—A woman, aged 60, had a cæcostomy performed for acute obstruction due to a growth of the hepatic flexure. She had fæculent vomit on admission and this continued after operation. This ceased with human bile, but after a day this ran short and recourse had to be taken to ox bile. The vomiting returned and was again allayed by human material. I saw her on the fourth morning looking very fit and the vomiting had almost ceased. She was suddenly seized with acute abdominal pain and vomited persistently in spite of all until her death three hours later. Post-mortem examination showed that the cæcum had slipped back and filled the peritoneal cavity with fæces.

Case in which the Bile Failed after Primary Success.

CASE 5.—A man, aged 35, had an acute gangrenous appendix with an ileus duplex at the time of operation. Drainage to the pelvis was employed, and at the same time an ileo-transverse colostomy was performed. This was on Jan. 4th. On the evening of the 6th he suddenly collapsed and began to regurgitate rather than vomit fæculent matter. He had a muttering delirium and was plucking at the bed clothes. Human bile was given and the vomiting had almost ceased next morning, whilst the man's condition was greatly improved and he said he felt better. The improvement continued day by day, but on the 11th the vomiting recommenced and persisted in spite of all efforts. I did not see him myself after the 10th, and those who did see him thought that his death was due to a progressive general peritonitis. In the light of experience gained from subsequent cases I cannot rid myself of the suspicion that a recurrence of some obstruction was really the cause of his death.

In all, 13 cases have been treated with this method. They were cases of an extreme degree of ileus, all with stercoral vomiting. Of this number four have died—one as a result of leakage from a cæcostomy into the peritoneum, another from a cause which was never settled as a post-mortem was refused. The remaining two fatalities were due to an unfortunate happening which was the result of ignorance of the potency of the treatment and which I think can be avoided in future work. I will now describe these two cases.

A woman of 65 was admitted to hospital with a strangulated femoral hernia on Feb. 2nd. The hernia was operated on, and the gut, which quickly regained its colour, was returned. The radical cure was completed in the usual manner. Two days later she commenced to vomit stercoral matter and this was controlled with human bile. Three days later the vomiting restarted and continued at intervals. All the time the patient looked remarkably fit. On two occasions I thought of reopening her abdomen, but she was so frail that it was not done. She died on Feb. 18th. The post-mortem revealed a strangulated loop of intestine in the other half of a bilocular hernial sac which had been reduced en masse at the time of operation. It is easy to be wise after an event, but the fact remains that with the administration of human bile this woman of 65 had lived for 16 days with complete obstruction due to a strangulated loop of small intestine within her abdomen.

The second case is of a similar nature.

A woman, aged 30, was admitted with abdominal pain and vomiting. The diagnosis was acute obstruction. At operation a band was found and divided. Three days later the vomit was fæcal and the treatment by human bile was started. On the fifth day, since she had not vomited again, the bile was stopped. Her bowels were well opened as a result of an enema. Two days later the vomiting began again, and this time it was only stopped when morphia was given in addition to the bile. This alternation went on until 15 days after her operation, when there was a copious fluid stool. I now ventured to give her a small dose of mag. sulph. The fæcal vomit restarted and I said that there was some organic cause which had been missed at the first operation. She was given a bile enema, and on opening her abdomen an intussusception due to a polyp was found in the lower part of the ileum. It is evident from her history over these two weeks that this had only been present intermittently. The polyp was removed and a lateral anastomosis performed above and below, as the suturing after removal of the polyp had constricted the lumen of the bowel to a dangerous degree. She rallied from this procedure, but there was only ox bile available, and though I have no actual proof I feel that the substance in ox bile which causes the pain can not only not improve the condition, but can even be deleterious if given to a patient who is really badly shocked. (This danger is never to be feared when human bile is employed.) This case died on the second day after the operation.

These two histories are sad reading, but in a new form of treatment success cannot always be obtained. There are bound to be pitfalls and experience has to be bought at a price. The only consolation lies in the fact that they were cases in extremis when this form of treatment was tried, and that nothing else

could have done them any good with a greater hope of success. Their lives were undoubtedly prolonged, and with my present knowledge I do not think that failure would have resulted, since in both cases the operation would have been done many days earlier.

SUMMARY OF THE EFFECTS OF HUMAN BILE IN ACUTE ILEUS.

In most cases after the first rectal injection of human bile the vomiting stops forthwith, and even if this is not the result at once it is very much diminished, and an increase in the bile given will secure the desired result. The violent hiccough which so often accompanies ileus, especially in cases of primary small intestine obstruction, will lessen and disappear in a few hours. The drawn, anxious expression fades rapidly, and at any rate it is true to say that if you do not see the patient for some hours the change is so pronounced that it cannot be missed. The dry furred tongue will become moist and clean, and will remain so in spite of an unrelieved organic obstruction. In addition, the restlessness is abolished. The patient will volunteer the information that he feels quite a different person from what he did a few hours before, and his whole manner and bearing confirm this statement as being true. Perhaps the most striking manifestation is the softening of the abdomen and the disappearance of the distension, without any passage of flatus per rectum. One is forced to the conclusion that is has gone whence it came and has been reabsorbed.

It was thought probable on the basis of experiments on animals that the symptoms which develop in intestinal obstruction were due to some interference with physiological function, such as the absence of bile in the small intestine. For this reason bile was injected in human cases of acute ileus.

The experimental work for this lecture was done in the Pharmacological Laboratory of Sheffield University. I wish to tender my sincere thanks to Prof. Edward Mellanby for his kind help and criticism. The expenses were defrayed by a grant from the Royal Society.

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STUDIES IN THE ACID-BASE EQUILIBRIUM IN PSYCHOSES.*

BY ISABELLA ROBERTSON, M.D. LOND.

THE GASTRIC FUNCTIONS.

THIS paper records the results of a series of observations on the gastric functions in certain types of mental disorder, and forms part of a research in the acid-base equilibrium in psychoses. These observations were carried out: (1) by an analysis of the gastric contents; (2) by an investigation of the variations in the alveolar CO_2 pressure following a standard meal.

Four groups of subjects were investigated. Only those who after a complete physical examination showed no gross physical abnormality were selected. The first group consisted of ten normal healthy men and women, the second of ten melancholics, the third of ten schizophrenics, and the fourth of ten cases of anxiety neurosis. The cases of mental disorder were all uncertified and of comparatively short duration. Each case selected, however, presented a typical clinical picture, and was subjected to fairly prolonged observation before any investigation was undertaken. Considerable difficulty was experienced in persuading the psychotic patients to swallow the fractional tube and in teaching them to expire normally through the mouthpiece of the Haldane gas analysis apparatus. For these reasons it was decided to confine the investigation to a comparatively small number of cases, and to investigate these cases thoroughly, rather than to examine a large number of cases once or even twice. The investigations were carried out under similar experimental conditions, and each patient was examined on several different days.

The first part of the investigation consisted of a series of observations on the gastric test-meal. Using the fractional tube for extraction and the gruel test-meal, a complete analysis of the gastric test-meal was made every 20 minutes. The free HCl and the total acidity were estimated, using dimethyl and phenolphthalein as indicators, and the results recorded graphically, the acid value being represented by the number of c.cm. of N/10 alkali which would be required to neutralise 100 c.cm. contents. The total chlorides were estimated by the Volhard method. One or two of the patients who eventually did swallow the fractional tube were so agitated on each occasion that the results obtained were valueless. In the majority of the patients who were finally selected a fairly considerable emotional disturbance occurred during the first one or two examinations, and the results were found to vary somewhat in consequence. This emotional disturbance was not noted during the later examinations, and the results obtained were of a characteristic type. That an emotional stimulus—e.g., fear—inhibits gastric secretion has been shown by T. I. Bennett and J. F. Venables (1920). J. R. Bell and W. McAdam (1924) have also noted that the lowest acid curve obtained after a test-meal is that obtained on the first examination, and that subsequently the free HCl is of characteristic type.

The second part of this investigation consisted of a series of observations on the variations in the alveolar CO_2 pressure following a standard meal. Changes in the alveolar CO_2 pressure following a standard meal in normal subjects have been demonstrated by E. C. Dodds (1921). He finds that during the first 30–45 minutes the alveolar CO_2 pressure rises 2–6 mm. Hg, subsequently falling to nearly the same extent below the original level—the lowest point being reached after one and a half to two hours—and regaining the original level three hours after a meal. In a later paper Bennett and Dodds (1921) have noted the correlation which exists between the curves of gastric acidity and the alveolar CO_2 pressure following a meal in normal subjects of varying types as regards their gastric secretion.

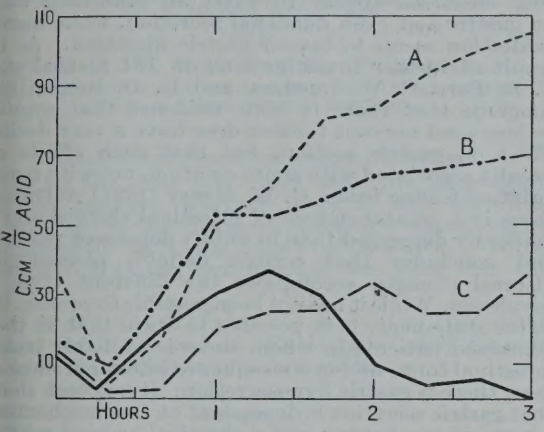
The analysis of the CO_2 percentage in the alveolar air was carried out by the Haldane Priestly method, using the Haldane gas analysis apparatus. A special burette, the bulb of which was capable of holding 18 c.cm. and the graduated stem 2 c.cm., was used.

Gastric Test-meal.—The variations in the results obtained from the same individual on different dates were slight, and even when the variation was maximum the general conformation of the curve was maintained. Generally, the curve obtained on the first day was lower than on any subsequent day. The average free acidity of the fasting juice was 12 c.cm. N/10 acid and the amount varied from 5–50 c.cm. The percentage of free acidity after ingestion of the gruel meal showed an initial fall at 20 minutes—then a steady increase, reaching a maximum—a free acidity of 30–50 c.cm. N/10 acid—about one and a half hours followed by a gradual fall. C. Bolton and G. W. Goodhart state (1922) that the curve of acidity due

* This communication forms part of a report to the Medical Research Council.

to free HCl assumes in 90 per cent. the form of a single peak, and that the fall in the curve may result from neutralisation or dilution, or both. The curves of free and total acidity showed a difference of 15 c.cm. N/10 acid, and ran closely parallel. Generally, the stomach emptied in two hours. These results are in agreement with those of Bennett (1926), J. Ryle (1926), and H. McLean (1925). (Fig. 1.)

FIG. 1.



Curves of gastric acidity. The continuous line represents free acidity in normal subject. A = Agitated melancholic. B = Schizophrenic. C = Early schizophrenic showing atypical curve.

Alveolar CO_2 Pressure.—The variations in the alveolar CO_2 pressure following both a standard meal and a gruel test-meal were next investigated. The alveolar CO_2 pressure was expressed as mm. Hg, and the results recorded graphically. It was noted that the same type of curve was obtained on different days from the same subject, though the actual figures might vary from day to day. The results were in agreement with those of Dodds—a rise in the alveolar pressure following a meal, generally maximum at 45 minutes, and a subsequent fall, maximum at one and a half to two hours—and regaining the initial level at two and a half to three hours.

A comparison of these curves with the gastric curves of the same subjects shows that a definite correlation exists between the gastric acidity and the variation in the alveolar CO_2 pressure, the increase in CO_2 pressure varying directly with the amount of gastric HCl secreted. It has been shown by Dodds and Bennett (1921) in a series of observations that the subsequent fall in alveolar CO_2 pressure which occurs is due to secretion of alkali into the duodenum, and that this secretion is chiefly pancreatic in origin (W. Boldyreff, 1914–15). (Fig. 2.)

Results in Melancholia, Schizophrenic, and Anxiety Groups.

Melancholia Group.—These cases were all men of early middle age, free from gross organic disease. All were typical cases of melancholia occurring in men of a good type who had made a good adaptation until the time of breakdown and had been free from nervous or mental disorder. In slightly over 50 per cent. of the cases a history of abdominal pain, varying from definite epigastric pain to vague abdominal discomfort, was elicited.

The number of cases examined was too small to allow of any generalisation, but it did appear that there was a definite abnormality in the gastric secretion of melancholics. Only one case showed a definitely normal type of secretion. The results obtained from these ten cases were: normal, one; hyposecretory, six; hypersecretory, two; and atypical, one.

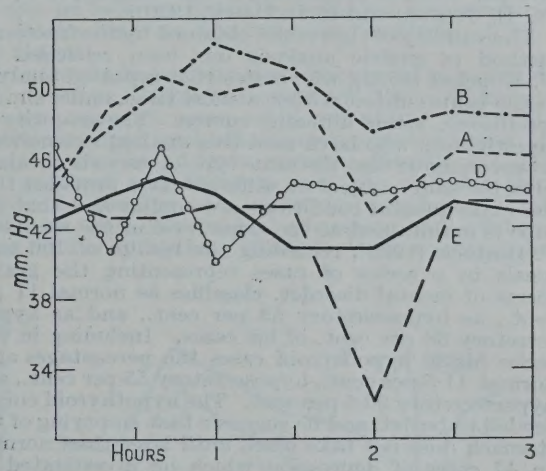
Schizophrenic Group.—In the adolescent psychoses diagnosis is admittedly difficult in the early stages, and since these cases were seen at a very early stage of development each member of the group was submitted to fairly prolonged observation before investigations were made. Subsequent histories have proved the diagnosis to be justified. All were of the hebephrenic type and in none had dementia supervened at the time of investigation.

In this group also the majority of the patients showed both abnormal gastric curves and correspondingly abnormal alveolar CO_2 pressure curves. The results of these ten cases were: normal, two; atypical, two; and hypersecretory, six.

Anxiety Group.—This group consisted of typical cases of anxiety neurosis. These were all young men, free from organic disease. In none of the cases could the onset be said to date from factors in the present life of a previously sound normal individual. Four of these cases, who were either quite unable to swallow the tube or, having swallowed it, to retain it for more than five or ten minutes, gave a constant type of alveolar CO_2 pressure curve. Three showed a marked and unduly sustained rise throughout, indicating hypersecretion or deficient pancreatic secretion, while the fourth showed no rise other than a slight and transient rise above the initial level at one and a quarter hours.

In this group also the majority of the patients examined show an abnormal type of gastric secretion, this abnormality being, as in the schizophrenic group,

FIG. 2.



Alveolar CO_2 pressure curves. The continuous line represents normal curve. A = Agitated melancholic. B = Schizophrenic. D, E = Melancholics of depressed anergic type.

a hypersecretion. The results of these ten cases were: normal, three; hyposecretory, one; hypersecretory, five; and atypical, one.

Gruel and Casein Test-meals.

Before discussing these findings it was considered advisable to compare the gastric secretion following the ordinary gruel test-meal with the gastric secretion following a pure protein meal of casein. A comparison of the gastric secretion following the gruel meal and the casein meal shows that casein produces a more intense gastric secretion than does gruel, this difference being due to the dynamic effect of the protein molecule. The general conformation of the two curves, however, indicates that the type of gastric secretion is unaltered, the difference being rather one of degree.

Discussion of Results.

The results obtained from the three groups of psychotic patients, based on an analysis of over

150 fractional test-meals and over 200 alveolar CO_2 pressure curves, were as follows :—

—	Normal.	Hypo-secretory.	Hyper-secretory.	Atypical.
Melancholia ..	1	6	2	1
Schizophrenic ..	2	—	6	2
Anxiety neurotic.	3	1	5	1

A comparison made between the gastric secretory curves following a pure protein meal and that following the conventional gruel test-meal showed that in both types of meal this abnormality persisted and hence could not be ascribed to abnormal response to types of food. The alveolar air curves corresponded in a normal fashion with the gastric acidity curves. A comparison of the gastric and alveolar CO_2 pressure curves of the same patient showed that a definite correlation, such as exists in normal subjects, does exist between the two types of curves. In classifying a patient, therefore, as hyposecretory or hypersecretory it was possible to confirm the gastric analysis by means of the alveolar CO_2 pressure in the majority of the patients, the exceptions being those patients from whom it was impossible, owing to lack of coöperation, to obtain reliable specimens both of gastric contents and of alveolar CO_2.

In the group of normal men and women who acted as controls none showed either hypochlorhydria or hyperchlorhydria. It has been shown that hypochlorhydria exists in 4 per cent. of apparently normal people and similarly that hypersecretion is found in 4 per cent. of apparently normal healthy subjects (M. E. Rehfuss and P. B. Hawk, 1920).

The validity of the results obtained by the fractional method of gastric analysis has been criticised by N. Kopeloff (1922), who states that repeated analysis in the same subject within a short time, under similar conditions, yields different curves. The majority of investigators who have used this method extensively, however, agree that the same type of curve is obtained from the same subject on different days provided that the experimental conditions are similar and that the tube is maintained at the same level in the stomach. J. Bostock (1926), recording the results of 100 test-meals in a series of cases representing the graver forms of mental disorder, classifies as normal 11 per cent., as hyposecretory 53 per cent., and as hypersecretory 36 per cent. of his cases. Including in this series his 36 hypothyroid cases the percentages are : normal 11·5 per cent., hyposecretory 55 per cent., and hypersecretory 33·5 per cent. The hypothyroid curves tended to be flat, and he suggests that emptying of the stomach does not take place until later than normal. In 47 cases of depression which he investigated 26 shows either achlorhydria or hypochlorhydria and 15 showed hyperchlorhydria. There is, therefore, almost complete agreement between the results Bostock obtained from his cases of depression and the melancholia patients of the present series. Of his nine cases of dementia præcox, however, six were of hyposecretory type and only one of a hypersecretory type, while of the ten schizophrenia cases investigated in this series six were of a hypersecretory type.

Consideration of the melancholia group shows that those patients who were hyposecretory were depressed, anergic, and obviously suffering from some degree of intestinal stasis and that those patients who were agitated showed definite hypersecretion. One of the patients in this group who alternated between anergic and agitated phases of depression within a few days showed in both phases alike the same type of steadily rising gastric curve, with a free acidity of 85–100 c.cm. N/10 acid at the end of three hours. The effect of hyperacidity is to cause a retardation of the emptying of the stomach, and in this case it was noted that it was always possible to withdraw about 30–50 c.cm. of contents at the end of three hours. It was possible to examine this patient on many occasions, and the results of these examinations showed clearly in this patient that it is not the acute emotion of the moment which determines the type of gastric secretion, in whic case one would find it possible to correlate the anergi phase with hyposecretion and the agitated phase wit hypersecretion, but that the type of gastric secretio is determined by the general visceral tone, which i this particular patient was one of increased nervou tension. The gastric curve was, therefore, a hype secretory curve, even on the days when the patien was anergic.

C. B. Farr and C. W. Lueders (1923), on the basi of fractional studies in 46 cases, conclude that depres sing emotions appear to exert an inhibiting effec on gastric and even duodenal secretion, while menta exaltation seems to favour gastric digestion. As th result of further investigations on 191 mental case C. B. Farr, C. W. Lueders, and E. D. Bond (1925 conclude that there is some evidence that emotio or increased nervous tension does have a very decide effect on gastric section, but that such effects ar usually associated with acute emotion, not with a mer habitual feeling tone. G. W. Henry (1924) states tha there is a greater degree of intestinal sluggishness i markedly depressed than in mildly depressed patient and concludes that certain definite physiologic visceral changes accompany the different types psychoses. While it has not been possible to confirm th latter statement, it is possible to state that in thos depressed patients in whom there is probably lack intestinal tonus and in consequence intestinal sluggis ness, there is gastric hyposecretion. It has been show that gastric secretion is dependent on two mechanism a nervous mechanism and a chemical or local nervou mechanism, the latter acting through the productio of a hormone. In these depressed anergic patien it seems probable that both mechanisms are at fau and that the vegetative nervous system may b at fault in two ways, both through failure to initia gastric secretion and through insufficient intestin tonus, inefficient gastric and intestinal movement and in consequence an accumulation of the produc of such digestion as does occur.

In considering those other psychotic patients, t agitated melancholics and the schizophrenic-anxie groups, in whom there is generally gastric hype secretion, it seems probable that in the earlier stag of the disorder there is an overactive condition the vegetative nervous system acting on the produ tion of gastric secretion and the augmentation intestinal tonus.

Summary.

In this paper the gastric secretion and the correlat alveolar CO_2 tension has been studied with t following results: 1. A normal type of gast secretion was found in only 20 per cent. of the psycho patients. 2. Comparison of the gastric and alveol CO_2 tension curves shows that a definite correlati does exist between the two types of curve. 3. comparison between the gastric secretory curves follo ing a pure protein and a gruel meal shows that t abnormality persisted and could not, therefore, ascribed to an abnormal response to types of fo 4. There is evidence to show that depressed, aner patients belonged to the hyposecretory group and th those patients who were agitated showed defin hypersecretion.

In conclusion, I should like to express my indebte ness to Dr. F. L. Golla for his interest and guidance this research, to Dr. E. Mapother and his medi officers for facilities to carry out the research. Dr. E. G. B. Calvert and Capt. S. A. Mann, B.Sc., advice and helpful criticism, and to those members the staff of the Maudsley Hospital who acted controls.

ROYAL SOUTH HANTS HOSPITAL.—An extension the nurses' home and a new operating theatre at the Ro South Hants and Southampton Hospital have been ope by Lady Montague of Beaulieu. In the course of a year so it is hoped to have 200 beds in the hospital, but needs of the district will not be met until 300 beds available.

THE ASSOCIATION OF OW BLOOD CHOLESTEROL WITH THE OCCURRENCE OF FITS IN EPILEPTICS.

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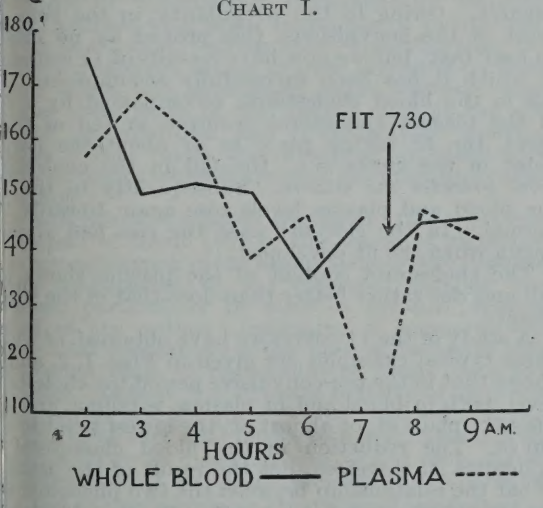
Biochemical Investigations of Epilepsy.

DURING the past few years attempts have been ade to discover whether there is any chemical normality in the blood of epileptics which might correlated with the onset of seizures. Thus, gwood (1924) has put forward the view that an

arts I., II., and III. show the Amount of Cholesterol (mg. per 100 c.cm.) in Whole Blood and Plasma Before and After an Epileptic Fit.

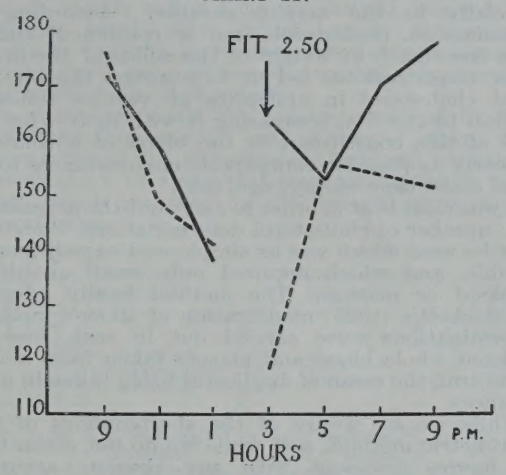
CHART I.



ileptic seizure is preceded by an alkalosis, which, leading to a diminution in the calcium of the blood, uses the convulsion. Marrack and Thacker (*a*) (1926) ve investigated the hydrogen-ion concentration of e blood of 34 epileptics and have found it to be thin normal range, even in patients having frequent s. They conclude that "a high plasma pH cannot considered to play an essential part in producing s." Further, Marrack and Thacker (*b*) (1926) have duced evidence to show that even if chronic slight alosis did occur in epileptics, it could not lead a reduction in calcium-ion concentration in the sma. They are of opinion, therefore, that pilepsy is not caused by a reduction in the calcium- concentration in body fluids."

Bisgaard, Norvig, and Larsen (1920, 1924, 1925) lieve that there is a great increase in the blood monia of epileptics before the onset of a seizure. is they attribute to a disturbance of the ammonia retion in these patients. Bisgaard has gone further d suggested that the "ammonia dysregulation is due parathyroid insufficiency." Luck, Thacker, and rrack (1925) find that a high blood ammonia may ur at times in epileptics, but not necessarily before s. Blood ammonia is high in starvation, for example, ondition in which epileptic patients are more than ually free from fits. High blood ammonia they do not consider to be the cause of fits. They also find no evidence of abnormal ammonia excretion in epileptics (1926). Wuth (1923) criticises theories regarding the ætiology of epilepsy based on changes which occur in the blood constituents during or after a fit. He states that non-protein nitrogen, uric acid, creatinine, and serum protein may show

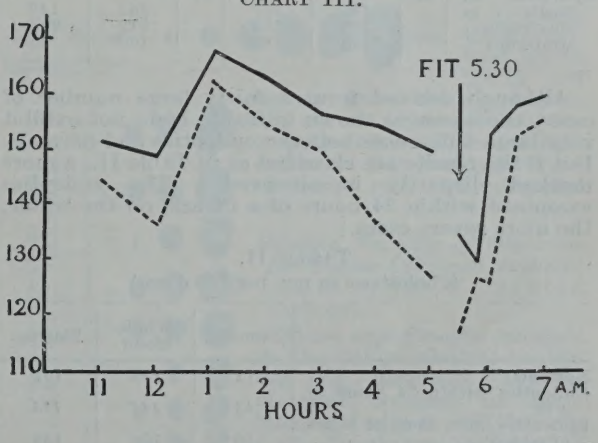
CHART II.



slight increases during and shortly after convulsions, but the changes are not always uniform, and are certainly not specific for a convulsive seizure. These changes he believes are to be regarded as secondary phenomena due to the physical exertion of the convulsions.

Negative findings of other observers may be included here. Lennox (1923) has examined the non-protein nitrogen, urea nitrogen, amino nitrogen, uric acid, creatinine, sugar, and alkali reserve in the blood of epileptics, and found them normal. Hamilton (1925) has examined and found normal the concentration of chloride, bicarbonate, inorganic phosphorus, total fixed base, and calcium in both serum and cerebro-spinal fluid of epileptics. Hitherto, then, no metabolic

CHART III.



abnormality in epileptics has been conclusively proved or generally accepted.

Blood Cholesterol in Epilepsy.

Apart from the use of sedatives, it has been found by different workers that epileptic seizures may in a number of cases be diminished in frequency (*a*) by starvation; (*b*) by a high fat diet; (*c*) during pregnancy. It has also been observed, and, indeed, been accepted as of value in diagnosis that, in epileptic women, fits are often increased in number and, in fact, may occur exclusively at or about the menstrual period.

In searching for some common factor we recalled that in the circumstances (*a*), (*b*), and (*c*) above when the fits are diminished in frequency, the blood cholesterol has been stated to be above normal (see Campbell's review, 1925) whilst at or about the menstrual period when fits are more frequent, the blood cholesterol is markedly decreased (Okey, 1925). Moreover, cholesterol and its esters form a quantitatively large part of the dry matter of nerve tissue and are present especially in the myelin sheaths. According to Hammarsten, cholesterol (free or combined) constitutes one-eighth by weight of the solids of the brain. These considerations led us to examine the level of blood cholesterol in epileptics at various times in relation to the fits, comparing it with figures for the level of this constituent in the blood of normals in as nearly as possible comparable circumstances (diet, social class, time of day, age, sex).

It was clear that in order to carry out the necessarily large number of cholesterol determinations, a method must be used which was as simple and expeditious as possible, and which required only small quantities of blood or plasma. The method finally adopted was Sackett's (1925) modification of Bloor's method. Determinations were carried out in each case on oxalated whole blood and plasma taken from a vein in the arm, the mean of duplicates being taken in most instances.

While we are aware of the shortcomings of this colorimetric method, and while we do not claim that our figures represent with any absolute accuracy the amount of cholesterol ("free" cholesterol + "ester" cholesterol) in the blood or plasma, we do claim that the results obtained for epileptic and for normal blood under similar conditions, are comparable.

The earlier results are summarised in Table I.

TABLE I.
(Cholesterol in mg. per 100 c.cm.)

—	Males.			Females.		
	No.	Whole blood.	Plasma.	No.	Whole blood.	Plasma.
Normals ..	39			32		
Mean ..		*172*	*163*		*175*	*172*
Maximum ..		222	212		243	217
Minimum ..		157	142		152	133
Epileptics ..	65			59		
Mean ..		*157*	*147*		*161*	*149*
Maximum ..		198	185		219	203
Minimum ..		100	85		100	95

Although derived from a fairly large number of cases, the averages shown in Table I. do not exhibit very large differences between epileptics and normals. But if the results are classified as in Table II., a more marked disparity is observed. (The epileptics examined within 24 hours of a fit are, on the whole, the more severe cases.)

TABLE II.
(Cholesterol in mg. per 100 c.cm.)

—	Number.	Whole blood.	Plasma.
Normals	71	173	167
Epileptics within 24 hours of a fit	45	*147*	*135*
Epileptics more than 24 hours after a fit	79	166	155

Popéa and Vicol (1925) have reported a few results which are in agreement with our own up to this point—i.e., they find that the blood cholesterol of epileptics is lower than that of normals, but they believe that the fall in blood cholesterol is the *result* of the attacks, and does not precede them. It became necessary, therefore, to determine whether the diminution which we had found was merely the effect of the muscular exertion of the fit.

In the first place we examined the level of blood cholesterol in eight normals (medical students) before, immediately after, and half an hour after a short period (one minute) of severe exercise which was deemed equivalent to that undergone during an epileptic seizure. The results are shown in Table III.

TABLE III.
Average blood cholesterol values before, during, and after exercise in mg. per 100 c.cm.

—	Whole blood.	Plasma.
Before exercise	190	172
Immediately after exercise	168	149
Half an hour after exercise ..	186	166

There was invariably a definite fall in the blood cholesterol immediately after a short bout of severe exercise. Cholesterol is taken out of the blood but how, or for what purpose, we are entirely ignorant.

It appeared, therefore, that the low blood cholesterol in epileptics might possibly be explained as the result of the muscular exercise of the convulsions. It must not be forgotten, however, that whilst in the normals of Table III. the cholesterol value rapidly returned practically to its original level after the sudden fall in the epileptics the cholesterol appeared to remain low for a much longer period.

We next examined the blood of epileptics at times immediately before and immediately after seizures. Owing to the irregularity in the time of onset of the convulsions, this proved by no means an easy task, but we now have records of 11 instances in which it has been successfully accomplished. A fall in the blood cholesterol, accompanied by a fall in the plasma cholesterol occurred in ten of the cases, the fit taking place at or about the lowest point in the curve—i.e., the fall in the cholesterol level *precedes the seizure*. Subsequently to the fit the blood and plasma levels rose again towards the normal. In the eleventh case the rise had already begun when the fit developed.

The cholesterol content of the plasma shows the fall and rise rather better than does that of the whole blood.

A study of the 11 curves we have obtained, of which three typical examples are given in Figs. 1, 2, and 3, shows that in the pre-convulsive period the cholesterol level, both in blood and in plasma, is falling, and the fits take place at, or almost at, the lowest point in the curve. The reduction in the blood cholesterol of epileptics is, therefore, not the result of the attacks. What the relationship between the two phenomena is we are not at present in a position to say. In view of the known connexion between the liver and cholesterol metabolism, the findings of Thom (1916) that the ratio of brain weight to liver weight is greater in epileptics than in normals may have significance in relation to our results.

The normal physiological rôle of cholesterol is largely unknown. Even less is known concerning the part played by this substance in conditions of disease. It is obvious that very serious difficulties remain to be overcome before the bearing of our findings upon the ætiology of epilepsy is made manifest. Nevertheless, we believe that the results we have presented above, pointing as they do to a definite metabolic abnormality in this disease, justify a more extended inquiry. With this we are at present engaged.

This investigation forms part of a research into the ætiology of convulsive states which is being conducted at the London Hospital and the Hospital for Epilepsy and Paralysis, Maida Vale, under the general direction of Dr. George Riddoch. It is a pleasure to acknowledge the help which we have received from Dr. R. Langdon-Down and Dr. J. Tylor Fox. Grants towards the expenses have been made by the Medical Research Council and the trustees of the London Hospital Medical College Research Fund.

(References are given at the foot of the next page.)

EXPERIMENTAL CANCER:

TUDIES ON THE ACTION OF GLYCERINE ON TISSUE CELLS.

WITH AN ACCOUNT OF A METHOD OF RENDERING ULCERATED TUMOUR TISSUE RELATIVELY SAFE FOR TRANSPLANTATION.

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A PROBLEM of considerable importance in experi-ntal cancer is that of the propagation of the erated tumour. Ulceration means infection, and ected tumour material, when transplanted into althy animals, results practically invariably in her abscess formation at the site of inoculation h subsequent ulceration, evacuation of pus, and th of the implant, or else—and this is the more quent happening—death of the animals in the ceeding few days from septicæmia. Thus, indeed, ny a tumour strain has been lost whose propagation ght well have proved of value in the ultimate ution of the cancer problem.

During the course of experiments on the treatment experimental tumours in mice according to cyto-rapy ideas, the writer found, while testing out effect of inoculating systematically tumour-ring animals with small fragments of devitalised, d as he thought, tumour cells—resulting from the tively prolonged action of pure glycerine on fresh nour tissue, and subsequent saline washing—that times there arose in the treated mice at the site such inoculations new progressively growing nours. This result was observed independently two occasions when it arrested attention and called inquiry.

As evidence of a marked degree of vital resistance the part of tissue cells to the action of glycerine, practical bearing of the observation on the problem the propagation of the ulcerated tumour was parent, particularly in view of certain previous dies of the author [1] indicating a comparatively ler vital resistance on the part of bacterial cells glycerine than of representative tissue cells like cocytes. Indeed, the ultimate toxicity of glycerine leucocytes and for staphylococci had been shown . cit.) to be such that leucocytes could presumably port a glycerine concentration 15 per cent. higher n staphylococci, an appreciable degree of difference.

To test the soundness or otherwise of the foregoing ception concerning the relative toxicity of glycerine tumour cells and for bacteria, as well as to fix approximate toxicity of glycerine for tumour cells mselves, were the objects of the present investiga-n, which is based on a series of experiments carried with a progressively growing highly virulent, transplantable mammary adenocarcinoma of the mouse, normally giving about 80 to 100 per cent. "takes" on transplantation into normal animals.

[1] THE LANCET, 1926, ii., 326.

Toxicity of Glycerine for Tumour Cells.

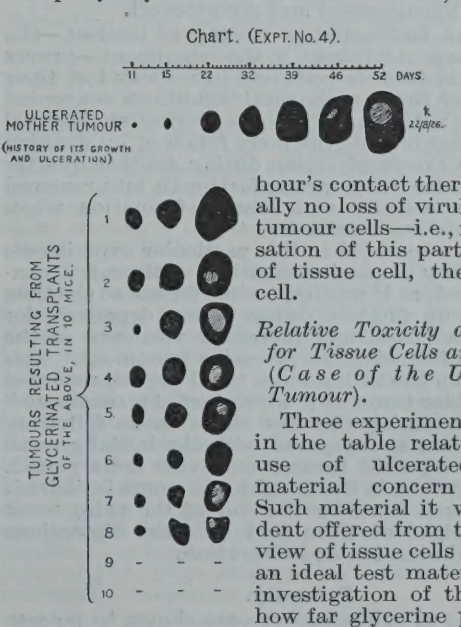
This was estimated by submitting small pieces (0·5 to 1 g.) of fresh tumour tissue to varying intervals of contact with pure glycerine, then washing away the excess of glycerine by immersing the glycerinated tissue in sterile saline (one or several changes) or in glucose broth, after which small transplants (6 to 8 mm.³ approx.) were inoculated subcutaneously into mice, and the number of progressively growing tumours which resulted noted.

The table sets forth the results obtained in five experiments thus carried out, column 3 giving the time interval of the glycerine contact and column 8 the percentage of successful transplants, while subsidiary data is recorded for ulterior reference in the other columns.

No. of expt.	Parent tumour.	Glycerine treatment.		Transplantation into mice.			Percentage of successful "transplants."
		Duration of contact in hours.	Duration of subsequent washing.	No. inoculated.	Previous history.	No. of "takes."	
1	U.	24	5–10 mins. in saline.	6	4 "turn-outs" and 2 normal.	0	0
2	H.	2–4	½ hr. in saline.	6	Tumour-bearing	1	16
3	H.	2	¾ hr. in 3 changes of saline.	10	Normal, young.	1	10
4	U.	½	½ hr. in glucose-broth.	10	Normal, adult.	8	80
5	U.	¼	5 mins. in saline.	6	1 "turn-out" and 5 normal, young.	3	50

U., ulcerated; H., healthy.

Consideration of cols. 3 and 8 of this table shows that under the action of glycerine in vitro cellular vitality, or rather virulence (aptitude for in vivo growth), falls off rapidly beyond half an hour's contact, to be almost abolished in two hours. It is noteworthy, however, that up to half an hour's contact there is practically no loss of virulence of the tumour cells—i.e., no devitalisation of this particular type of tissue cell, the epithelial cell.



Relative Toxicity of Glycerine for Tissue Cells and Bacteria (Case of the Ulcerated Tumour).

Three experiments recorded in the table relating to the use of ulcerated tumour material concern us here. Such material it will be evident offered from the point of view of tissue cells (neoplastic) an ideal test material for the investigation of the question how far glycerine possessed—as presumptively established for leucocytes—greater toxicity for bacteria than for body cells.[1]

A typical experiment of this ulcerated series is recorded in the accompanying chart, which provides a complete representation of Experiment 4 (see table).

The upper portion of the diagram records the growth history of the mother tumour in a mouse during 52

V BLOOD CHOLESTEROL IN EPILEPSY: REFERENCES.

(*Continued from previous page.*)

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days. The skin over the tumour became broken through and ulceration began, as indicated by the shaded areas on the tumour silhouettes, a few days previous to the forty-sixth day of charting. The ulceration, then, in this particular case, corresponded to a little over a week, during which time microbial infection of the tumour substance occurred freely—a time interval sufficient to render it in the ordinary course of events quite unfit for further experimental propagation. The mouse was sacrificed on August 22nd, 1926, the tumour excised, and a small portion of the non-necrotic shell (0·5 to 1 g.) transferred to a sterile test-tube containing pure glycerine. After a contact of half an hour, with frequent shaking to permit as thorough permeation as possible of the tissue by the glycerine, the tissue was removed and transferred for a quarter of an hour to a tube of glucose broth to wash away the excess of glycerine. Small pieces of the washed tissue were then transplanted into ten normal mice. The result is exposed in the remaining portion of the chart.

This latter reveals two facts of great interest. No deaths from septicæmia occurred among any of the experimental animals during the first week following transplantation, and there is recorded a remarkably high percentage of tumour "takes"—actually 80 per cent.

The fact of no deaths from septicæmia establishes the efficacy of the glycerine treatment in ruling out bacterial activity—in other words, of controlling bacterial virulence. This is the more remarkable in that the contact with the glycerine did not extend beyond half an hour—an interval of contact quite inadequate to kill bacteria of themselves, notably streptococci, staphylococci, *B. coli*, and enterococci, as we have shown elsewhere.[2] The action of the glycerine here, then, can hardly be other than that of an attenuating agent of bacterial virulence, in which case it enters into the same category of action as that established by Larson[3] in regard to the loss of pathogenic power of bacteria—*B. anthracis*, *T.B.*, *B. tetanus*, and pneumococci—by contact for short intervals—e.g., a quarter of an hour, with weak solutions of Na-ricinoleate, work which has of late been confirmed by Netter, Andre, Cesari, and Cotoni,[4] as concerns pneumococci and streptococci.

The second fact noted as worthy of interest—the high percentage of "takes" in the experiment—proves definitely that tumour cells had in no way lost their vitality under the experimental conditions concerned—treatment with pure glycerine during an interval of half an hour outside the body followed by washing away of the excess glycerine during another quarter of an hour—for they sprang forthwith into renewed reproductive activity and tumour formation when implanted into fresh animals.

A third fact revealed in this particular experiment, perhaps worthy of passing mention—although it cannot be stressed, as it was impossible for me at the time to follow it up further, owing to my departure for Egypt—is the seemingly increased virulence of the tumour cells following the glycerine treatment. This is indicated by the rather more rapid growth recorded for the daughter tumours ("glycerinated transplants" of the chart) during the first three weeks following transplantation, as compared with the initial growth history of the parent tumour over this same period. The rate of growth in the daughter tumours is, indeed, seen to be such that, by the end of the third week six out of eight of them had attained dimensions leading to skin tension and ulceration.

Summary.

Tissue cells of epithelial type are shown to possess a high degree of vital resistance to the action in vitro of pure glycerine upon them, cancer cells being utilised for the demonstration. It is established that these latter can support contact for half an hour with glycerine without their capacity for subsequent reproduction being affected—indeed, without t least sign of devitalisation.

Further, experiments are detailed which confir that glycerine is endowed with greater toxicity f bacteria than for tissue cells: in that, after glycer treatment, tumour cells, as representative tissue cel survive in vivo while bacteria disappear; and use h been made of this property to solve an importa problem in cancer research—namely, the successf propagation by transplantation of the ulcerat tumour.

A vast range of usefulness appears incidentally stand revealed for glycerine in surgery, especial as concerns plastic surgery and grafting operations.

I wish to thank Prof. C. A. Pannett for his symp thetic interest and enthusiastic encouragement this research, and others, carried out by me under h ægis at St. Mary's Hospital. It is a pleasure, beside to acknowledge my indebtedness to the Canc Hospital Research Institute for the tumour stra here employed.

[2] Loc. cit.
[3] Proc. Soc. Exp. Biol. and Med., 1925, xxii., 357.
[4] C. R. Soc. Biol., 1927, xcvi., 184.

Clinical and Laboratory Notes

A NOTE ON THE TREATMENT OF SARCOMATOSIS CUTIS AND MYCOSIS FUNGOIDES BY X RAYS.

BY ARTHUR WHITFIELD, M.D., F.R.C.P. LOND.,
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I WOULD like to draw attention to a peculi phenomenon which may be observed as the res of the use of X rays in sarcomatosis cutis and myco fungoides. Eighteen years ago I had under r care a patient suffering from sarcomatosis cu whose history was as follows:—

CASE 1.—The patient, a medical man, aged 46, was sharply on the left breast by a tennis ball. A flat hæmato was produced and never disappeared, but changed character slowly until it became a brownish, tough infilt tion of the skin, apparently about half an inch in thickn After some months smaller but otherwise similar tumo began to develop on the head, trunk, and extremiti At first they only appeared at long intervals, but when came to me for treatment, two years after the blow, stated that he could find a new one, on the average, o a week.

A small tumour was excised to confirm the diagnosis, a the growth was found to be a typical, medium-sized, rou celled sarcoma lying in the deeper part of the true sk I recommended the use of X rays, and believing that original tumour was probably the parent of the other devoted myself first to this. A full pastille dose was gi unfiltered and the tumour disappeared leaving no ot mark but a slight atrophy and falling in of the skin. Sub quently the whole surface of the body was worked o with pastille doses, spaced appropriately and with sm intervening periods of time as would, it was believed, av too severe a damage to the patient's general health.

The result of this treatment was most striking; ev tumour disappeared and the patient enjoyed perfect hea for the next five years. He then returned to me, dur the war, with some recurrence on the skin of the ne accompanied by enlargement of the cervical glands. I unable at that time to carry out the treatment myself, sent him elsewhere to receive his X rays, and since t time I have lost sight of him, though I am afraid that probably died of his disease.

The striking feature of the case lay in the fact th whereas, before he underwent treatment for primary growth, he was developing fresh tumours the rate of one a week, no fresh tumours develop after the first pastille dose, and some of the smal ones involuted before they were treated local This peculiar behaviour of the tumours natura remained in my memory.

CASE 2.—On March 12th, 1925, I was asked to se maiden lady, aged 60, in consultation with Dr. Raym Streatfeild. The history of her eruption was somew

definite. She had suffered from eczema as a child and had covered, but since then she had been troubled, from me to time, with slight recurrences. The actual disease r which I saw her had probably begun on the scalp two ears before.

In the autumn of 1924 she was under the care of two rmatologists, one of whom had not considered the question mycosis fungoides, while the other, although suspicious, d been unable to find sufficient evidence for a firm diagnosis. hen I saw her six months later her condition was a assical example of mycosis fungoides and was advancing ith extreme rapidity. The scalp was covered with red, filtrated patches, partly excoriated and crusted, the face as almost wholly involved in a thick infiltration, and the hole of the trunk and the extremities with the exception the palms and soles were covered with marked infiltration ranged in the characteristic fantastic, polycyclical patterns. ching was intolerable and the patient's general condition as very bad.

In agreement with Dr. Streatfeild, I decided to give her ll doses of X rays. I pointed out that the result of her ndition might well be fatal from a general toxic absorp-n, but that the disease was in itself fatal and that death sulting from the X ray treatment would be easier by far an that occurring in the usual course of the disease. cordingly, on the same day full pastille doses, five in mber, were given to the top of the head, both sides of the e, and the upper parts of the shoulders behind. One week er five further full pastille doses were given to the nape the neck, both clavicular regions and both breasts five hes below the clavicular areas. At my suggestion, also, . Streatfeild gave her the first of a proposed series of podermic injections of sulfarsenol.

A week later (March 26th) I saw her again. She was then nfined to bed and apparently moribund, with a very weak lse, only just conscious, and taking very little nourish-nt. The areas irradiated on the first occasion were owing some improvement while those treated on the second re unaltered. An extraordinary change had, however, ken place in the areas not yet treated, and especially in se on the abdomen and the lower parts of the back and ttocks. These had all swelled up and become violently lamed, the horny layer being lifted off by a profuse serous charge. Owing to the grave condition of the patient was resolved not to continue with either the irradiation the sulfarsenol.

After a week in this condition the patient rallied slowly, parts first X rayed cleared up entirely, then the second ies followed suit, and finally all the rest of the eruption derwent complete involution with exception of a small tch, one inch across, on the outer side of the middle of right thigh. Her health improved rapidly so that she s able to get up and go down to the country for a holiday. On May 20th, two months after the last treatment by rays, I saw the patient again and her condition was as ows. The scalp was normal in colour, though, of course, d, and the only visible abnormality was some scaling embling an exaggerated scurfy head. The face, the trunk, l the whole of the extremities with the exceptions ntioned below were apparently quite normal, showing e, silky skin. On both buttocks, especially the right, re was some ill-defined scaling showing no particular tern and no infiltration beneath. On the right thigh re was still the single infiltrated, brownish patch about inch across. A full pastille dose was given to this and to right buttock.

The subsequent history of the second case is interest-. Not very long after her apparently complete overy from her disease mental symptoms began develop, and these progressed somewhat rapidly til the patient was in a condition of dementia. e was then placed in an appropriate home in which died nine months after the time when I first w her, without any reappearance of symptoms of cosis fungoides. A well-known alienist who saw her s of opinion that the mere curing of very wide-ead dermatosis, not necessarily by such drastic ans as X rays, was not infrequently followed by ere mental symptoms.

The point of interest in these two cases, more striking the second than in the first, is the remote effect he X rays. The violent reaction in the untreated ts of the eruption suggests that cytolytic products m the irradiated areas reached the rest of the ease by means of the circulation and there set up igestive process finally resulting in the removal of infiltration. Whether there is anything in my a of treating the earliest lesion first I am unable say, but I suggest that in treating such cases it l be well to treat part, and possibly preferably the oldest part, with the greatest doses that the skin will stand, and then to hold one's hand and watch the result on the untreated lesions.

Finally, I may emphasise the fact that I do not claim to have cured either of these patients. I have, however, the record of one case of mycosis fungoides in which my clinical diagnosis was confirmed by the late Dr. Colcott Fox after microscopical examination by both of us, and this patient, after being cleared by means of X rays, lived without relapse for a great number of years, finally dying of apoplexy when more than 70 years of age. It appears, therefore, that it is justifiable to take great risks in the endeavour to cure patients of a disease which is otherwise invariably fatal, and in its terminal stages is accompanied by hideous suffering.

A CASE OF
TOXIC NEUROLABYRINTHITIS
FOLLOWING THE INDUCTION OF LABOUR BY QUININE.

BY F. PEARCE STURM, M.CH. ABERD.,
AURIST AND LARYNGOLOGIST, LEIGH INFIRMARY, LANCASHIRE.

Tinnitus and vertigo are common enough in predisposed individuals who take large doses of quinine, but they usually disappear with the discontinuance of the drug or the consumer's habituation to it. In the following case three doses were followed by a neurolabyrinthitis which for several years has been progressive.

The patient, aged 32, states that while an in-patient in a local hospital for women in 1924 three attempts to induce labour by the administration of quinine and castor oil were made at intervals of a week, the third attempt being successful. After the first two doses she suffered for 24 hours from severe tinnitus and vertigo, which were, however, transitory. After a third dose, which was followed by labour, the tinnitus became permanent, and has remained so for three years. It varies in intensity; it is worse at the menstrual periods, which are regular; recently it has become occasionally intolerable. When at its worst it is accompanied by vertigo, the last attack of which caused her to fall in the street.

The otoscopic image is normal in both ears; the Eustachian tubes are patent; the nose and nasopharynx free from obvious disease. The caloric labyrinth reactions are normal and equal on both sides. She has perfect hearing so far as this can be tested by clinical methods. Rinné's test is positive in both ears. The upper and lower tone limits for air-conduction as tested by forks, whistle, and monochord are unshifted. She states that her hearing is now often painfully acute. As tested by Bárány's noise-box there is evident dysacusis, but this is so common in sensitive patients with normal ears that its clinical significance is negligible. The only definite functional abnormality is a slight shortening of bone-conduction on both sides (five seconds for C 128).

In the absence of any personal or family history of previous ear, nose, or throat trouble, this case must be regarded as a toxic neurolabyrinthitis due to quinine. Otosclerosis is excluded by the fact that the lower tone limit is unshifted. Even in the earliest stages of otosclerosis, previous to any functional disability appreciable by the patient, a shortened air-conduction for low tones is always demonstrable. I do not know the quantity of quinine taken by this patient, but am informed by my gynæcological colleague, Dr. L. A. Burt, that doses of as much as 10 gr. of the sulphate of quinine may be given for the induction of labour. As an otologist who for many years, following Charcot's practice, has treated "aural vertigo" with maximum doses of ½ gr., 10 gr. seems to me to be an excessive and potentially dangerous quantity.

ADDENBROOKE'S HOSPITAL: PROPOSED ENLARGEMENT.—It has been decided to place a new block in the front of Addenbrooke's Hospital, Cambridge, in line with the front of the out-patients' department. The new block will contain on the ground floor a board room and a lecture room, and on the first floor the wards for children. In the main building new wards are to be added; the cost of the work is estimated at £37,400.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 285.*)

SECTION OF SURGERY.

WEDNESDAY, JULY 20TH.

THIS Section met, with Prof. D. P. D. WILKIE in the chair, to discuss

TUBERCULOUS DISEASE OF THE KIDNEY.

Sir JOHN THOMSON-WALKER (London) said that in 1900 the mortality from nephrectomy for this condition was 25 per cent., whereas to-day it was 3 per cent. or less. This advance was due to (1) an increased knowledge of the pathology of the disease, (2) improved technique, (3) earlier diagnosis, and (4) the introduction of the cystoscope and ureteral catheterisation. There were three types of tuberculous disease of the kidney—miliary tuberculosis, tuberculous nephritis, and renal tuberculosis. The first two did not concern the surgeon. In renal tuberculosis the first change was at the apex of the pyramid where ulceration took place; cavity formation occurred later, and later still there was thickening of the wall of the calyx. If secretion was maintained the result was tuberculous hydronephrosis leading to suppression of secretion and to caseation. The symptoms included frequency of micturition, pyuria, hæmaturia, renal pain, and some fever. In spontaneous cure the tuberculous kidney might heal by scarring of the ulcerated pyramid. The cavity might be shut off by fibrous tissue (closed renal tuberculosis); the symptoms disappeared and the condition was only discovered at careful medical examination or post mortem. The urine might yield pus, the kidney might be palpably enlarged, or a shadow might be seen in the radiogram.

Tubercle bacilli were present in the urine of 80 to 90 per cent. of young adults with typical symptoms. They might not be found owing to their scarcity or because they were intermittently present, or because the cavity was closed and shut off from the renal pelvis. In such cases the presence of tuberculous lesions elsewhere, or cystoscopic examination, would lead to a diagnosis. On cystoscopic examination the ureteric orifice was drawn up and catheterisation of the ureters might be difficult; the bladder might be opened and an attempt made to catheterise the ureters direct. Prof. A. Fullerton had devised a method of exposing the ureters extraperitoneally at the pelvic brim and there examining them, opening the lumen for catheterisation. On account of its progressive nature, tuberculous disease of the kidney should be treated by nephrectomy without delay where the second kidney was healthy and there was no contra-indication. At operation the ureter might be divided and cauterised at the lower pole of the kidney, or might be removed by dissection from above or from the iliac fossa. Or the ureter might be left and the patient kept under observation for a year when, if trouble arose, it could be removed extraperitoneally. The wound should be closed completely without drainage in order that the risk of persistent sinus formation might be minimised. In his series the operative mortality was 2·5 per cent., and while 60·3 per cent. of the patients were completely cured, 17 per cent. had died later from various causes. In the postoperative period tuberculin had been administered in small doses.

Dr. A. ROLLIER (Leysin) described heliotherapy as a subsidiary factor in the treatment of renal tuberculosis, and nephrectomy as the only rational method in unilateral disease. Where there was pyuria with tubercle bacilli in the urine delay was dangerous because of infection of the bladder. In the preoperative stage, when the patient was weak, a course of heliotherapy would considerably improve resistance. In the postoperative stage it would prevent a flare-up of quiescent lesions elsewhere which the temporary disturbance of the operation might have occasioned. It might also hasten cicatrisation of the ureteral stump. In chronic and gaping broken-down wounds heliotherapy, well directed, would encourage healthy granulation and eradicate tuberculous infection. In bilateral renal tuberculosis it would assuage pain, encourage auto-immunisation, and bring a feeling of well-being not otherwise obtainable.

Prof. ANDREW FULLERTON (Belfast) said that the questions to be faced were: (1) Is the lesion unilateral? and (2) is cure possible without operation? Of 158 patients with tuberculosis of the bladder 87 were males and 71 females. In 141 cases evidence of involvement of the kidney was found, and in seven of these (5 per cent.) the condition was clinically bilateral. In 29 of the 87 males (33 per cent.) deposits of tubercle were present in vesiculæ, prostate, or epididymis. A history of previous tuberculous lesion was present in 26 per cent. of all the cases; a focus was found in 15 per cent. In 73 cases nephrectomy was performed, with five deaths, all of which occurred in the first 35 cases. Of the 68 survivors, 55 had been traced; 15 had since died, four of them, after long periods of relief, from causes other than tubercle. Unsuspected renal tuberculosis was rife among phthisical patients, in whom there might be no tissue destruction. Ureteral catheterisation might upset the sphincteric action of the ureter and permit contamination of a healthy renal pelvis. After nephrectomy the stump of the ureter near the bladder might be slow to heal and might be dealt with from an incision in the iliac fossa extraperitoneally. Of 41 out of the 68 patients not treated by operation the after-history had been traced; 26 (over 63 per cent.) were dead, and only two of the others had since had relief from symptoms by a process of auto-nephrectomy—i.e., by conversion of the ureter into a solid cord.

Mr. HENRY WADE (Edinburgh) said that in the investigation of a suspected case of renal tuberculosis it was necessary to determine (1) the kidney involved, (2) the state of that kidney and its fellow, and (3) the actual presence of another kidney. Tuberculosis of the kidney could be diagnosed without the presence of tubercle bacilli in the urine, making use of the preliminary radiogram of the renal region which might demonstrate calcareous deposit. The history, the presence of pyuria without demonstrable organisms and the diminished capacity of the bladder were significant. Cystoscopically, the presence of the golf-hole ureter was diagnostic. In the pyelogram the presence of cavitation at one part with normal outline elsewhere was typical of renal tuberculosis. If the ureteral catheter stuck after entering the ureter for only 1 or 2 cm., the taking of a ureterogram would demonstrate the typical irregularly dilated appearance of the tuberculous ureter and similarly the normal contour of the photograph of the opposite side would demonstrate a healthy kidney the. Spontaneous cure of renal tuberculosis never occurred, and a healed tuberculous lesion of the kidney had never been seen post mortem. The treatment was nephrectomy, but if by heliotherapy the general state could be improved in the preoperative period the danger of general infection later would be diminished. Irritability of the bladder might persist after nephrectomy owing either to lack of mobility of the layers in the wall of the bladder at the site of a healed ulcer or to persistent single ulcer in the summit of the bladder. In the latter case persistent single ulcer might be excised with complete cure of frequency.

Mr. J. F. DOBSON (Leeds) pointed out that examination was difficult in advanced tuberculosis of the bladder, and to obtain information as to which was the diseased kidney it was essential to catheterise the ureter. Fullerton's method was especially useful where cystoscopy failed; both ureters could be exposed and examined for thickening and mobility and a sample of the secretion could be obtained.

Mr. BERNARD WARD (Birmingham) said that the disease started at the apex of the pyramid and the upper papillæ were more often involved than the lower. The cystoscopic appearance of the tuberculous ureteral orifice was characteristic, but in addition the estimation of combined renal function, chromocystoscopy, and thorough examination of the urine should lead to a definite and accurate diagnosis.

Mr. ERNEST WARD (Paignton) said that in pulmonary tuberculosis there were often renal symptoms which usually disappeared under a hygienic régime. After nephrectomy for unilateral renal tuberculosis there was sometimes recurrence of tubercle in the other kidney or the lungs or generalised tuberculosis. After operation hygienic conditions and the use of heliotherapy were valuable.

Mr. TEMPLE MURSELL (Johannesburg) spoke of the necessity for calling in a cystoscopist whenever a patient was suspected of renal tuberculosis; the diagnosis could then be rejected or confirmed. In Johannesburg there were excellent facilities for heliotherapy, but ultimate cure by this means was impossible, though the late results of the cases operated on were good, and the benefits of preliminary treatment with sunshine were very great.

Mr. GORDON CRAIG (Sydney) referred to two cases treated by tuberculin and general hygienic measures without operation which had remained cured for 15 years. This showed the advantages of climatic conditions and heliotherapy. He mentioned the value of sacral anæsthesia with novocaine in cystoscopic examination of the bladder where there was much irritability.

Sir JOHN THOMSON-WALKER, in reply, said that in no histological examination of so-called healed tuberculous lesions of the kidney had he failed to note evidence of round-cell systems indicating persistence of the condition. Early in the disease the ureter might still be mobile and supple although transmitting infected urine, and therefore in Fullerton's method of examining the ureter extraperitoneally it was necessary to open its lumen and withdraw a sample of the urine. In advanced renal tuberculosis it was impossible to take away the infected perirenal fat and thus completely remove the infected area, but in only 6 per cent. of cases had he found it necessary to remove later a ureter left at the original operation.

Mr. W. RANKIN (Glasgow) read a paper on

Primary Diaphysectomy in Osteomyelitis.

In osteomyelitis, he said, the periosteum of the affected bone was lifted up and the epiphyseal cartilage separated. A portion of bone died and formed a sequestrum which, after a long process of natural separation, was extruded. The process occupied many months, during which there was a constant danger of pyæmia and a general deterioration of health. In diaphysectomy the bone which was doomed to death and sequestrum formation was removed rapidly and cleanly by operation, and new bone was afterwards laid down evenly and soundly, replacing the involucrum of Nature. The operation should not be performed on patients over 12 years of age; the bones most frequently operated on were the humerus, the femur, and the tibia. Where a long bone had been involved an internal glass rod splint was used to maintain the natural length of the limb. A series of cases was shown.

Mr. ROBERT KENNON (Liverpool) said that tenderness at the site of pain in a bone, persisting over 12 hours and accompanied by fever, indicated osteomyelitis and the need for operation. X rays would not demonstrate any change in the bone where pus formation alone, without decalcification, had occurred.

Mr. MARCUS MAMOURIAN (Ashton-under-Lyne) did not favour diaphysectomy in early cases where simple opening of the medullary cavity would suffice. In the later neglected cases the operation yielded brilliant results. A bone-graft could be used with advantage instead of an inert internal splint.

Mr. ROBERT OLLERENSHAW (Manchester) had done diaphysectomy chiefly where one of two bones was infected. In such cases extension and splinting had been the main standby in preserving the line and length of the new shaft.

Mr. RANKIN, in reply, said that among 14 cases there had been only two deaths. The technical difficulties in twisting the diaphysis free from the epiphyseal plate were slight and the plate was never damaged. In the after-treatment, in addition to the internal glass rod, extension devices—e.g., callipers—were used, besides plaster-of-Paris and other splints. After-care was of primary importance in securing a sound result.

THURSDAY, JULY 21ST.

The next session of this Section was devoted to a discussion on the

PLACE OF SURGERY IN THE TREATMENT OF TOXIC GOITRE.

Mr. T. P. DUNHILL (London) said that though many cases of toxic goitre fell into definite groups, practically every type of histo-pathological condition might be found somewhere in a diseased thyroid gland. There was a tendency to multiply types and subdivisions, but the different types were related, and it would ultimately be found that the differences were only in degree. He would refer to the following forms of goitre: (1) primary Graves's disease; (2) secondary Graves's disease, early; (3) colloid; (4) late, which was largely fibrous with small adenomatous nodules, little exophthalmos, and marked nervous and cardiac disturbance; (5) unilateral adenomatous enlargement in secondary toxic goitre; and (6) single adenoma in secondary toxic goitre.

In exophthalmic goitre it was easy to recognise clinically a primary type (symptoms and goitre together) and a secondary type (goitre first, symptoms later), but it was hard to say where the primary type ended and the secondary type began. Histopathologically, also, a primary and a secondary type were recognisable, but some cases which histopathologically were undoubtedly secondary would clinically have been considered primary. There might be great differences between examples of the secondary type, and some of them approached very closely to what was generally called toxic adenoma. A case of primary Graves's disease had well-defined features; an early secondary case was scarcely distinguishable from it. In the late secondary case exophthalmos had become less, the nervous phenomena were less obvious, but cardiac changes were more marked. Working backwards, the toxic adenoma was well recognised, but sometimes there was more than one adenoma and a gland might be bilaterally symmetrical, and the nodules in it scarcely recognisable as adenomata, so that the whole gland approached the type of late secondary exophthalmic goitre.

At puberty there was a tremendous call on the function of the thyroid gland. To meet it there was temporary hypertrophy. Involution should occur after the demand had been successfully met; if it did not, then a colloid goitre remained. The stimulus from outside the gland produced the pathological changes, but the changes thus produced in turn caused the manifestations of the disease. In exophthalmic goitre the stimulus might be subconscious, psychic, or traumatic, or possibly from focal sepsis or deficiency of available iodine. Such a stimulus, acting on the normal gland, caused primary exophthalmic goitre. Where it acted on a colloid goitre only the areas between the vesicles were able to respond. In the primary case the signs and symptoms preceded the goitre. In the secondary type the other signs and symptoms followed the occurrence of a colloid goitre. Both types showed prominent eyes, a hot skin, tremor, and a rapid pulse, and they followed a similar course. In the third decade the colloid goitre of puberty became nodular though still symmetrical. The factors which in a younger patient produced frank exophthalmic goitre might come into

action at any time, but when they were directed against an old fibrotic goitre the areas able to respond were small and the result was late secondary Graves's disease. The pathological change might be scattered throughout the whole gland or limited to one lobe or portion of a lobe, in which case a single adenoma might be formed, removal of which would free the patient from her symptoms.

The place of surgery in the treatment of toxic goitre varied in each of the conditions discussed. Out of 273 patients operated upon, 107 had suffered for four years, 77 for more than six years, 53 for more than ten years. While the patients were under medical care lying in bed disturbing features impossible to arrest had occurred, such as damage to the eye, glycosuria, mania, loss of weight, and auricular fibrillation. The economic factor was important and it was impossible medically to restore these cases to an industrial plane. Surgical intervention varied with the type of the disease. In a primary case operation should be delayed, for many people with slight symptoms could be piloted medically back to health. After six months' persistence of the disease —unless the patient led a sheltered life—surgery must be considered. In primary and secondary Graves's disease with auricular fibrillation there should be no delay beyond the time necessary to get the patient into the best condition for undergoing the operation. When symptoms appeared in association with long-standing goitre, it was a waste of time to delay operation, and neither rest, medical nor X ray treatment would avail, whereas removal of the adenomatous mass would cause disappearance of the symptoms. In preparation for safe operation focal sepsis should be attended to, the pulse-rate should be lowered by rest in bed and iodine medication, and the extent of the operation should be graded. In cases of grossly incompetent heart, coöperation was essential between physician and surgeon. The death-rate varied according to the type of case operated on. For Graves's disease, excluding toxic adenoma, he had found that it was 2·8 per cent. Tetany and damage to the recurrent laryngeal nerve had occurred. To make the operation effective, enough gland substance must be removed to eliminate the toxic effect of the secretion, always bearing in mind the physiological needs of the body. Exophthalmos would largely disappear. In cardiac failure with auricular fibrillation, 87 per cent. of patients had been restored to health with normal cardiac rhythm as a result of operation. Glycosuria had disappeared and dropsy had been completely abolished by the resumption of normal urinary output. Patients who had suffered severely from exophthalmic goitre never returned to their previous condition, but they were a great deal nearer normal after operation, and almost all of them could take up their work and enjoy life once more. In a chronic case, with the heart and nervous system flooded with toxic secretion, sometimes for years, the organs quickly showed relief when this toxic secretion was suddenly reduced by four-fifths, but it was unreasonable to expect that their complete recovery should be other than gradual, and their capacity to withstand strain might never be quite complete.

Prof. G. R. MURRAY (Manchester) said that toxic goitre included all classes which gave general symptoms due either to excessive secretion or changed secretion. In the primary case toxic symptoms preceded thyroid enlargement; in the secondary case the enlargement preceded the symptoms. In thyrotoxic myocarditis the only chance of recovery was by operation, and advanced cardiac œdema was not a contra-indication to operation. The advantages of operation were found in the time saved, the rapid recovery, and the prevention of myocarditis.

Mr. THURSTON HOLLAND (Liverpool) claimed that the primary treatment of early cases of exophthalmic goitre should be by means of X rays, even without any other therapeutic measures. The only disadvantages seen in a large number of cases had been the occurrence of a burn and the risk of producing myxœdema. Early cases subjected to X ray therapy might be completely cured, and later cases should be given a chance.

Prof. R. E. KELLY (Liverpool) said that intratracheal ether anæsthesia in thyroid cases was of the utmost value. Pulmonary complications were very rare, and to prevent damage to the trachea in the passage of the catheter it was wise to X ray the part first. Warming the ether had no advantage as it was cooled in the tubing. In preparation for the anæsthetic, morphia should be used with care in case of maniacal idiosyncrasy. Similarly, the use of iodine might produce undesirable effects.

Dr. JOHN EASON (Edinburgh) said that fulminant cases of primary exophthalmic goitre were rare. In all cases complications could be anticipated and guarded against. With early diagnosis and supervision of individuals verging on the disease deterioration of organs could be allayed. A 5 per cent. operative mortality must be balanced against many years of fair living obtainable by those who were given careful medical supervision. Individual cases varied in their chance of recovery from operation and the operation in itself might not always prevent recurrence of symptoms. The preoperative period required careful handling and the preparation for preliminary minor operative procedures directed against focal sepsis in the teeth, &c., should be as thorough as for the major operation.

Sir WILLIAM WHEELER (Dublin) referred to a series of 82 cases, in 90 per cent. of which the patient had been subjected to medical and X ray therapy for years, and after remissions with increasingly severe crises had come to the surgeon. The only certain means of preventing relapse in toxic goitre was subtotal thyroidectomy, although 50 per cent. of cases showed considerable improvement with Lugol's iodine. X ray therapy was no guard against late relapse and death.

Mr. JOHN MORLEY (Manchester) said that surgical and radiological methods of treatment in the simple primary case caused improvement as contrasted with medical measures which did not. Surgery was more rapid than radiology. The preoperative régime under Lugol's iodine had greatly reduced the mortality. The operation to perform was seven-eighths subtotal thyroidectomy, and it was an advantage to give subcutaneous saline continuously throughout the operation.

Mr. A. J. WALTON (London) said that exophthalmos was a rare complication in colloid goitre and diffuse adenoma of the thyroid. X ray treatment in the preliminary treatment of exophthalmic goitre was useless as contrasted with its advantage in early carcinoma of the thyroid. Fibrosis did not occur after X ray therapy. Since the introduction of Lugol's solution in the preparation of the toxic case for operation there had been no operative mortality and the preoperative period of preparation had been limited in its extent.

Dr. L. A. ROWDEN (Leeds) said that in Leeds no case of toxic goitre reached the surgeon. Treatment was successfully carried through with X rays and no undesirable sequence such as burns had arisen. The results were especially satisfactory in cases with little enlargement of the thyroid but a high basal metabolic rate.

Dr. STARR (Toronto) considered that prolonged X ray treatment had no effect in preventing cardiac deterioration. In a series of 253 operations for goitre only 23 were on patients without toxic symptoms.

Mr. C. A. JOLL (London) said that exophthalmos was never present in true toxic adenoma. Lugol's solution could be used with advantage in cases both of exophthalmic goitre and toxic adenoma. At operation it was advisable to remove nine-tenths of the gland and when a small portion of gland-tissue was left posteriorly there was no danger of damage to the recurrent laryngeal nerve.

Mr. DUNHILL, in reply, agreed that it was undesirable to operate on early cases of Graves's disease. In the treatment and management of such cases it was

necessary for the surgeon, physician, and radiologist to work in close coöperation.

Sir ALMROTH WRIGHT (London) read a paper on the

Rational Treatment of Infected Wounds.

During the late war, he said, wounds were found in a state comparable to those occurring in the Middle Ages. Certainly wounds seen in civil hospital practice before the war held no comparison. Wounds reaching hospital in the war area contained material resembling fæcal matter, and every type of organism could be isolated from them. By the use of an adapted glass tube called a lymph leech, serum was obtained from such wounds, and on examination was found to contain the streptococcus alone. Normal serum had antitryptic power, and organisms growing in serum neutralised this antitryptic power and were termed serophytes. The pus and serum obtained from these grossly infected war wounds were completely lacking in antitryptic power; the organisms growing in them had produced trypsin which had overcome the resistance of the serum and had permitted digestion of the tissues. The end-result was a medium ideal for the nourishment of organisms. In the examination seriatim of layers of pus from a wound, the superficial layer contained a heavy infection of all kinds of microbes, whilst in the deeper layers of pure serum the streptococcus and staphylococcus alone were found. A heavy infection would allow organisms to grow in the blood because of the destruction of the antitryptic power of the serum. But by hole-and-corner methods of infection a less heavy infection would produce a similar effect because organisms hidden in odd corners of a wound had to deal with a smaller area of resistance from the serum, and thus more readily produced auto-digestion of surrounding tissue. The gangrene bacillus grew with difficulty in normal blood but readily in wounds, especially where a tourniquet had been applied or physical exertion had immediately preceded the wound. Always where normal alkalinity had been reduced there was a heavy infection of gangrene. Cases with acid intoxication had amazing recuperative powers after the administration of alkaline fluid. Experimentally, growth of *Bacillus welchii* occurred in blood to which antiseptics had been added. The antiseptic combined more readily with the albumin of the medium than the encapsuled albumin of the microbe and had therefore no value in safe concentration. The ideal combatant to microbic growth was blood serum, and a wound flooded with normal serum quickly became sterile. Dakin's solution produced a delayed out-pouring of serum on being applied to the surface of a wound. Experimentally, it had been shown that 5 per cent. salt solution would produce a quicker and greater outpouring of serum when applied to the surface of a wound, and application of this solution was the most satisfactory of all methods for the treatment of wounds.

FRIDAY, JULY 22ND.

At the third session of this Section there was a discussion on

CHRONIC APPENDICITIS.

Mr. WILFRED TROTTER (London) said that appendicitis first became known to surgery as a curable form of abscess in the right iliac fossa. Later in its milder forms it became known as a pathological condition which never completely returned to the normal. This discovery led to the interval treatment of appendicitis. An appendix removed at operation in the interval state might show: (1) unmistakable residual signs of recent inflammation, either ready to flare up or with fibrosis and obliteration of the appendix lumen; or (2) normal appearance in length, colour, and lumen; or (3) it might be long but fixed at some part and with a non-uniform lumen and spongy mucosa. It might contain inspissated fæcal matter. Furthermore, the ileo-cæcal glands were sometimes enlarged and this enlargement was often associated with a train of symptoms cured by appendicectomy.

The symptoms of quiescent and chronic appendicitis were indistinguishable. The pathological processes occurring were: (1) septic absorption, and (2) disturbance of motility and secretion. In the first of these the enlarged glands in the ileo-cæcal region demonstrated a path of septic absorption similar to that occurring from an infected tonsil. This factor of enlarged glands in relation to the appendix produced a train of symptoms bearing a direct relationship to the youth of the patient. Many attacks of supposed appendicitis in children were really due to acute inflammation of these glands, and tuberculosis in the glands was common, judging by the frequency of calcareous deposit in them. In the differential diagnosis, however, ureteral stones and upper abdominal conditions, such as cholecystitis, must be remembered. In children the effects of septic absorption from an appendicular focus might include osteo-arthritis, chronic pustular affections of the skin, and toxic conditions of the heart. If the appendix was unable to get rid of its fæcal contents its secretory activity must be interfered with. The gastro-intestinal tract was a unit and if the motility of the appendix was disturbed there were distant effects in the colon and stomach. This was borne out by the frequency with which other abdominal symptoms were found in association with the pathological appendix, and every abdomen opened for appendicectomy should be generally explored. Cases could be grouped into: (1) the obvious straightforward appendix case—the child; (2) the case suggestive of other abdominal or pelvic complications—the adult; and (3) the case with abdominal trouble not easy to place especially where there was a possibility of malignant disease. In the two last groups the incision must be planned to permit satisfactory exploration of all abdominal viscera.

Mr. J. W. DOWDEN (Edinburgh) said that where a history was given of symptoms in the classical order—umbilical colic, then vomiting, then right-sided pain—the diagnosis of appendicitis was straightforward, but difficulties arose when this information was not obtained. A significant history in children was lack of appetite, listlessness, and inability to wear a waist-belt because of iliac pain. Tenderness might be at the classical point or to the left of the umbilicus or over the pylorus, but by judicious palpation with both hands the main tenderness would always be found in the right iliac fossa with relief at the other point where the case was one of true appendicitis. Tuberculous ileo-cæcal glands gave a syndrome of gradual onset, diffuse tenderness, and usually demonstrable enlarged glands in the neck. In adults incipient hernia with pain at the internal inguinal ring might simulate appendicitis. The visceroptotic female with a variety of tender areas in the abdomen, with discursive pain, and gurgling colon, often obtained relief in the recumbent posture. She was of the type which operation might convert into the "abdominal woman." Appendicular dyspepsia might closely simulate duodenal ulcer and even produce melæna, but was distinguishable by the intermittence of the symptoms and their variation from day to day.

Mr. VICTOR BONNEY (London) said that the right ovario-pelvic ligament passed from the uterine appendage in relation to the cæcum and appendix. Through this relationship lesions of the appendix, appendages, and ovary might react on one another and give rise to pain. Chronic appendicitis reacting on the pelvic organs gave rise to symptoms in them, and vice versa. An increasing number of ovarian blood-cysts were now seen which were due to intra-ovarian menstruation with an accumulation of blood in the ovary. Severe pain was caused every time the blood was poured out and in the later stages a large adherent mass was formed. In early cases where ovarian enlargement could not be made out the right-sided pain might simulate appendicitis. The pain, however, always recurred immediately before the menstrual period. There might be signs of peritoneal irritation, but the toxæmia and furred tongue of appendicitis were always absent. With retroversion

of the uterus, there might be pain on both sides. Pain on one side in excess would indicate a lesion of the bowel, glands, or appendix in relation to the stretched ovario-pelvic ligament.

Mr. A. J. WALTON (London) said that one attack of appendicitis rendered the patient liable to future attacks, usually of increasing severity. Primary chronic appendicitis was discredited except in the process of fibrosis, which was normal in older people or accompanied visceroptotic and pelvic disorders in women. In a large series of cases the area of hyperæsthesia most commonly found was in the groin, and often erosion of the mucous membrane in the stomach was noted in association with appendicitis. The pathological appendix was one in which either distension, pus, or stenosis could be demonstrated. In a series of cases in which operation was performed in the upper abdomen, appendices of healthy appearance were left, and in only 0·2 per cent. did attacks of appendicitis afterwards occur.

Mr. H. N. FLETCHER (Brighton) referred to the value of following up cases; many instances were brought to light in which appendicectomy had failed to relieve symptoms. A history of a classical primary attack of acute appendicitis was of the utmost value in diagnosing chronic appendicitis in cases with the right-sided pain syndrome. The removed appendix should always be examined histologically to confirm the diagnosis. Examination of the urine was essential to exclude a lesion of the kidney. Abnormal bands such as Lane's and Jackson's were sometimes better left alone and in the after-treatment of the visceroptotic patient whose appendix had been removed postural education and abdominal exercises were useful.

Prof. A. H. BURGESS (Manchester) advocated careful examination and comparison of the two iliac fossæ as regards the site of tenderness and grade of hyperæsthesia. In the straightforward case it was advantageous to examine other viscera, so as not to miss some other condition, as yet quiescent. This was especially necessary in older patients in whom malignant disease of the colon might occasionally be discovered before the onset of symptoms.

Prof. ANDREW FULLERTON (Belfast) said that in hydronephrosis and cysts of the kidney, and occasionally in renal calculus, there might be no blood in the urine. In addition to radiography, useful information could be got from an estimate of the specific gravity of the ureteral samples of the urine. Unilateral diuresis with low specific gravity was found in tuberculous kidney, renal calculus, and cysts of the kidney. In hydronephrosis a higher specific gravity due to inspissation was found. This method of examination was useful in the differential diagnosis of pain simulating chronic appendicitis.

Mr. G. H. COLT (Aberdeen) said that on palpation over McBurney's point in cases of chronic appendicitis a fine crepitation might be felt, quite distinct from a gross cæcal gurgle. This crepitation was typical of chronic appendicitis. Where adventitious bands were present their division at operation would prevent the possible occurrence of intestinal obstruction later.

Mr. TEMPLE MURSELL (Johannesburg) regarded Rovsing's sign as very useful in the examination of patients with right-sided pain. It depended on the production of pain in the right side of the abdomen over the appendix as a result of pressure in the left iliac fossa, and it was diagnostic of appendicular lesions.

Mr. M. MAMOURIAN (Ashton-under-Lyne) said that the incision for operation on a case with right-sided pain should be planned according to individual requirements, which might or might not point to more extensive exploration.

The PRESIDENT (Prof. D. P. D. WILKIE, Edinburgh) said that an excessive number of operations had been performed for chronic appendicitis, and diagnosis in this type of case had become less accurate than in other branches of medicine. The patient willing to have an operation and satisfied with such a diagnosis hesitated to spend time and money in the necessary investigation which would make it more accurate. Patients must be educated to the essential advantage of spending time on such investigation. The value of X rays in the diagnosis of chronic appendicitis was doubtful, but X rays were important in excluding associated lesions in the stomach or duodenum. Palpation of the abdomen while the patient was undergoing screen examination in the X ray room gave useful information about the site of tenderness.

Mr. TROTTER, in reply, remarked on the necessity for thorough preliminary examination of the patient both by clinical and laboratory methods. Chronic appendicular trouble was most rife in children, and appendicectomy might be limited more and more to the young. Tenderness in the right iliac fossa varied in degree with the type of patient. In the systematic physical examination of healthy students visceroptotic defects were commonly discovered. Diseases were due to infections and injuries and not to variations in anatomical contour.

Mr. ALEXANDER MACLENNAN (Glasgow) read a paper on

Burns.

The pain following a burn, he said, was severe except in those advanced and extensive injuries where an ominous quiet preceded death. In children light chloroform inhalation was safer than morphia as an analgesic. In the treatment of the burned surface the continuous bath was useful; in its absence, coverings of sterilised waxed paper were an excellent protective. Picric acid dressings were analgesic and gave protection by coagulating albumin. In the treatment of shock repeated doses of opium and alcohol were of value, and body-fluids must be replaced with saline. If sepsis should arise there was a danger of septic pneumonia, and because of this danger, where grossly damaged tissues were present, early amputation of a severely burned limb or excision of a burned surface was to be recommended. Skin-grafting was useful to hasten healing and prevent contracture, but there must be careful preparation of the field where Thiersch or Wolfe grafts were used. Tunnel grafting could be used at an earlier stage and consisted of burying narrow grafts under the surface; in ten days the covering crust could be removed and a large percentage of "take" might be expected. Areas slow to epithelialise could be usefully stimulated with scarlet red. In the treatment of late contracture it was necessary, before making use of a pedicle graft, to beware of persistent, though dormant, infection in scar-tissue.

Mr. W. C. WILSON (Edinburgh) described the following stages after burns: (1) shock, (2) acute toxæmia, (3) sepsis, and (4) healing. To meet those stages it was necessary in (1) to restore the normal temperature and protect from pain; and in (2) to prevent absorption of protein poisons from the burned area by causing coagulation; whilst in (3) an efficient coagulum protected against sepsis. A 2½ per cent. solution of tannic acid in sterile water applied as an hourly spray had been found of great value in the treatment of burns. The burned area was prepared under a general anæsthetic by carefully cleansing with methylated ether and snipping away all damaged tissue. The tannic solution was then sprayed on at hourly intervals and allowed to dry by exposure to air and heat. In a few hours a brown hard coagulum formed which gave complete protection from pain and sepsis. In 8 to 14 days the coagulum separated and the area was found to be almost completely covered with healthy epithelium. Where a case was seen late after severe toxæmia had produced exsanguination the most satisfactory measure was to give a transfusion of blood before dressing the burned area in the manner above described. The mortality following burns in a children's hospital was given as 37 per cent., but in a series of 37 cases treated by the tannic method there were only three deaths.

Mr. F. J. STEWARD (London) said that a burn must be thoroughly cleaned and sterilised before being dressed. A general anæsthetic was essential to give the surgeon time and opportunity for this cleansing.

EXHIBITION OF DRUGS, SURGICAL INSTRUMENTS, FOODS, AND APPLIANCES.

THE usual trade exhibition was opened in the Waverley Market Hall on July 18th. A brief notice of the more important exhibits is given below and will be concluded in the next issue of THE LANCET.

DRUGS AND PHARMACEUTICAL PREPARATIONS.

1. *General Drug Exhibits.*

[52] Anglo-American Pharmaceutical Co., Ltd. (Galen Works, Croydon), showed various preparations, including Huxley's witch-hazel jelly, preservative for the skin, and safeguard against midge-bites, sunburn, &c.; Huxley's dusting powder; Huxley's sal-antisepticus, a soluble antiseptic powder similar to liq. thymol co.; Huxley's glycerophosphate syrups; and "Colchi-sal"—capsules of colchicine methyl salicylate.—[63] The Anglo-French Drug Co. (238A, Gray's Inn-road, W.C.1) showed a series of special pharmaceutical preparations, including "Pharmasol Cuprum Radio-active," a non-toxic compound of colloidal hydroxide of copper with mesothorium bromide, for injection in cases of cancer; and "Orargol," a colloidal gold and silver preparation, in ampoules and solution, for general antisepsis, internal and external. At the same stand Modern Pharmacals, Ltd. (2, Calthorpe-street, W.C. 1), were showing the original Lehnhoff-Wyld Sulfarsenol.—[76] Armour and Co., Ltd. (Queen's House, Kingsway, W.C. 2), had a display of their "Glanoid" endocrine and ferment preparations in tablet, liquor, and ampoule forms. Special attention was drawn to specimens of glands preserved in their natural colours. A new silky "non-boilable" catgut ligature was also shown.—[44] Boots Pure Drug Co., Ltd. (Station-street, Nottingham), showed a selection from their ever-increasing issues of modern preparations and fine chemicals, compressed tablets, and surgical sundries. These included "Stabilarsan" (Boots); "Thiostab" (Boots), for chronic metallic poisoning; "Bismostab" (Boots), a suspension of metallic bismuth in isotonic glucose; "Sulphostab" (Boots), a new intravenous organic arsenical; and "Acriflavine" (Boots) in neutral ½ gr. enteric-coated tablets.—[34] Burroughs Wellcome and Co. (Snow Hill Buildings, E.C. 1) had a beautifully arranged exhibit illustrated by illuminated coloured transparencies depicting micro-organisms, taken from photomicrographs, and the various organs of the body. Appropriate drug preparations were shown with each, including "Ephedrine" for hay-fever and asthma, "Avenyl," and "Alepol" (hydnocarpus preparations), for leprosy; Kepler malt extract with hæmoglobin; irradiated ergosterol; Wellcome Brand Dick and Schick test products and gonococcal vaccine and serum; Ergotoxine Ethanesulphonate; synthetic and natural thyroxine, and many others.—[12] G. W. Carnrick Co. (Brooks and Warburton, Ltd., 40–42, Lexington-street, W. 1) showed their well-known gland products, including Hormotone, and their free book on "Organotherapy in General Practice."—[16] The Crookes Laboratories (British Colloids, Ltd., 22, Chenies-street, W.C. 1) had made several additions to their range since the previous year, particularly a 50 per cent. cod-liver oil emulsion in which the taste is entirely covered, and which mixes with almost any quantity of water and remains mixed for four or five days; the vitamins A and D and the iodine content are independently standardised. Two forms of collosol lead were on view—a 0·5 per cent. and a 0·1 per cent.—[1] Messrs. Duncan, Flockhart and Co. (Edinburgh and London) gave special prominence to a display of anæsthetics, organo-therapeutical elixirs and tablets, and ophthalmic and nasal plastic gelatin capsules. The grasses and pollens used in preparing idiopathy tests were exhibited, and attention was drawn to hypodermic solutions, including pituitary, pituitary and adrenalin, peptone, asensitine, and the guaiacol-iodine-camphor compound for rheumatoid arthritis.—[15] Evans, Sons, Lescher and Webb, Ltd. (56, Hanover-street, Liverpool, and 50, Bartholomew-close, E.C. 1), showed a series of bacteriological products and drug preparations, including carefully standardised gland products; infundibulin (containing 10 clinical units per c.cm.); purgoids; sexatones (pluriglandular tablets); and the hydnocarpate and morrhuate of sodium, for leprosy and tuberculosis respectively.—[40] J. Gardner and Son (32, Forrest-road, Edinburgh) presented a large number of surgical instruments, many associated with the names of Scottish surgeons, a special exhibit of rustless and stainless steel, and the "Universal" operating table, with many original features.—[65] Genatosan, Ltd. (Loughborough, Leicestershire), showed, in addition to the familiar Sanatogen, Genasprin, Cystopurin, &c., a coryza spray and a series of local immunity antivirus vaccines for external application.—[21] The Hoffmann-La Roche Chemical Works, Ltd. (51, Bowes-road, N. 13), drew attention to their new laboratories, from which come many well-known preparations including "Omnopon," "Allonal," "Isacen," "Sedobrol," and "Somnifaine"—a liquid hypnotic for oral, intramuscular, or intravenous administration.—[8] J. F. Macfarlan and Co. (109, Abbeyhill, Edinburgh, and 32, Bethnal Green-road, E. 1) were the proud possessors of a letter from Lister about the application of cyanide gauze. They also showed a piece of the original carbolic gauze made for him, and catgut ligatures prepared from his and many other formulæ. Other exhibits included a series of fine pharmaceutical chemicals, notably salicin, pure and safe anæsthetics, and "Opoidine," a standardised preparation of the alkaloids of opium.—[36] Oppenheimer, Son and Co., Ltd. (179, Queen Victoria-street, E.C. 4), had a new form of vaporiser, which reduces all liquids, even non-volatile salts, to a fine, invisible smoke which is not condensible. The popular "Bipalatinoids" and "Pulverettes" were present in many varieties. A new preparation was "Maglactis," a magnesia suspension in gel condition, which never precipitates out. "Roboleine" and "Ung. Anæsthetic Renaglandin" for piles were also shown, and there was a new oxygen generator for producing 99 per cent. pure gas from chemical cubes in the same way as acetylene is made.—[38] Parke, Davis and Co. (50, Beak-street, W. 1) showed a range of eye ointments in collapsible tubes, and of gland preparations, notably parathyroid, guaranteed 90 per cent. pure. Among bacteriological products were the scarlet fever streptococcus antitoxin, preparations for the Dick and Schick test, and the public school anticatarrh vaccine. Sanocrysin was on sale this year, and Hæmoplastin had been improved by a reduction in its protein content. Also on show were "Hypotensive tablets" for blood pressure and "Agar crisp," a laxative resembling a breakfast-food.—[50] The Sandoz Chemical Works (5, Wigmore-street, W. 1) introduced a new calcium preparation, an oxidation product of glucose which can be used intramuscularly or intravenously. "Femergin" and "Lobeline" need no description.—[33] Schering, Ltd. (3, Lloyd's-avenue, E.C. 3), showed "Veramon—the safe analgesic"; Medinal; Neutralon, an antacid, astringent, and analgesic; cubes of pure camphor made from oil of turpentine; Müller's (Schering) conglobation test, and "Krysolgan," a gold preparation for tuberculosis and lupus erythematosus.—[18] E. H. Spicer and Co., Ltd. (72 Wigmore-street, W. 1), are the sole distributors in Great Britain for the Abbott Laboratories, Chicago, the Dermatological Research Laboratories, Philadelphia, and the Chemisch-Pharmazeutische A.G., Bad-Homburg. The chief among many exhibits was their *B. acidophilus* emulsion (Morbact) containing sufficient agar to

keep the bacilli alive and mineral oil to exclude air and protect them from the gastric juices.

2. *Special Drug Exhibits.*

[59] The Anglo-American Oil Co., Ltd. (Albert-street, N.W. 1), displayed their well-known "Nujol," "Cream of Nujol" (paraffin with agar), and "Mistol." The latter is now issued in an atomiser bottle.—[80] Behring Institute (Marburg-L., Germany, and W. Bredt, 41, Great Tower-street, E.C. 3) presented Yatren 105 for chronic amœbiasis and dysentery. Interest was aroused by the new Behring venule for sterile withdrawal of blood, a most convenient piece of apparatus.—[81] Bristol Myers Co. (112, Cheapside, E.C. 2) showed "Sal Hepatica," a saline regulator; "Ipana" tooth-paste; and "Ziratol," a hæmostatic antiseptic.—At Stand 19 Eno's Fruit Salt was dispensed and at Stand 99 Ichthyol Co., Ltd. (18, Adam-street, W.C. 2), showed the original ichthyol in 5 per cent., 10 per cent., and 20 per cent., preparations, and also "Ichtholan," a weak salve made up with equal parts of vaseline and lanolin.—[22] Kaylene, Ltd., showed their colloidal kaolin, also kaylene-ol, an emulsoid combination with colonol liquid paraffin (for which this firm are distributors). Colonol is also prepared with raspberry flavouring for children. Other combinations of kaylene-ol shown were with phenolphthalein (0·5 per cent.) and with magnesium sulphate. As agents for Majornas Angbageri, Goteborg, this firm also demonstrated the Swedish Health Bread Kakrispa, containing 100 per cent. whole-grain rye.—[103] Matthews Laboratories, Ltd. (Clifton, Bristol), in a bower of foxgloves and black cats, displayed the biologically standardised Hatcher cat-unit digitalis. "Nostroline" in the special nasal nozzle tube was also on view.—[14] The four varieties of Petrolagar were shown by the Deshell Laboratories, Ltd. (1/3, Brixton-road, S.W. 9). The plain is a 65 per cent. pure paraffin with agar; the others are unsweetened, alkaline (with magma magnesia), and phenolphthalein.—[69] Scott and Turner, Ltd. (Newcastle and 211, Blackfriars-road, S.E. 1), had an amusing model stage on which the preparation of a dose of Andrews Liver Salt was enacted.

3. *Miscellaneous Preparations.*

[24] Kolynos Incorporated (Chenies-street, W.C. 1) showed their dental cream in its familiar form and also in a concentrated liquid preparation for use as a mouthwash or gargle. Quite new is their "denture powder" for plates, and their skin soap.—[62] Jeyes Sanitary Compounds Co., Ltd. (99, Regent-street, W. 1), showed a comprehensive range of "Cyllin" toilet and surgical preparations, and drew especial attention to "Lano-cyllin," an antiseptic ointment, and "Branalcane," a 33 per cent. solution of glycyl borate in glycerine for diphtheria, sore-throats, &c.

FOODS.

[51] Benger's Food, Ltd. (Otter Works, Manchester), was represented, as well as the other products of the company, notably the peptonised beef and chicken jellies.—[31] Cadbury Bros., Ltd. (Bournville, near Birmingham), provided cocoa for the weary, and showed their range of chocolates, including the less familiar bitter, orange, and milk-and-honey varieties.—[88] Equally refreshing were the glasses of Gaymer's Cyder and Perry (Wm. Gaymer and Son, Ltd., Attleborough), which have been cooling the members of the B.M.A. annual meetings since 1898.—[17] Glaxo (56, Osnaburgh-street, N.W. 1) laid stress this year on Ostelin cream, a 50 per cent. emulsion to which ostelin has been added. Ostelin is also supplied in tablets, each being the equivalent of 1 drachm of cod-liver oil. Malto-Yerbine, the nutrient expectorant, is now available in a new liquid form.—[61] Granose Foods, Ltd. (Watford), showed "Granose" biscuits, made from 100 per cent. whole wheat; "Granovita" gluten bread and biscuits, and gluten meal.—[49] Horlick's Malted Milk Co., Ltd. (Slough, Bucks), had their well-known invalid diet in powder and tablet form.—[60] Keen, Robinson and Co., Ltd. (Carrow Works, Norwich), showed Almata, the synthetic milk food for infants, invalids, and nursing mothers. Robinson's groats, oats, and barley and Keen's mustard ointment were also displayed.—[11] Mead, Johnson and Co. (London Agents: Brooks and Warburton, Ltd., 40/42, Lexington-street, W. 1) showed "Recolac," their reconstructed milk food; "Casec," soluble calcium caseinate, and standardised Newfoundland cod-liver oil.—[73] At the stall of Montgomerie and Co., Ltd. (Ibrox, Glasgow), was found Berina food for infants, Berina malted milk food for older babies and invalids, and Bermaline bread.—[84] The Nestlé and Anglo-Swiss Condensed Milk Co. illustrated their exhibit with a series of photographic transparencies showing the process of manufacture. In addition to condensed milk attention was drawn to a sterilised cream and to the milk food on which seven generations of healthy rats have been reared.—[26] Oxo, Ltd. (Thames House, Queen's-street Place, E.C. 4), showed their meat juice, containing soluble uncoagulated proteins, and their "Oxoid" standardised endocrine preparations, as well as "Oxo," "Hospital Oxo," and "Lemco."—[58] Sister Laura's Infant and Invalid Food Co., Ltd. (Bishopbriggs, Glasgow), showed the baby and invalid food known by this name, and [30] Virol, Ltd. (Hanger-lane, Ealing, W. 5), laid particular stress on "Virol and Milk" for athletes, nursing mothers, and all cases of debility.—[116] Vitalia, Ltd. (17, Boniface-street, S.E. 1), showed the meat juice of this name, containing vitamins, organic salts, and 8 per cent. hæmoglobin without extractives.

SURGICAL INSTRUMENTS.

[42 and 53] Allen and Hanburys, Ltd. (48, Wigmore-street, W. 1), exhibited a wide range of surgical instruments and hospital furniture, some in German silver and cellulose enamel (for use abroad). Among the former may be mentioned the A. and H. patent knife handle, the first to be made with detachable blades in England; Souttar's craniotome and steam cautery apparatus, all-British cystoscopes, Lipiodol syringes, Rowland's fasciatome, Chevalier Jackson's endoscopic instruments; Magill's intratracheal spatula with battery in handle. The St. Bartholomew's Hospital pattern operation table had an adjustable clamp and new patent skull support.—[45] Arnold and Sons (John Bell and Croyden, Ltd., 50/52, Wigmore-street, W. 1) had a large series of surgical instruments on view, including a 1927 operation table on oil-pump base; a high-pressure steam vacuum steriliser, with improved radial-arm wheeled door; a new trolley for ward or theatre; goitre and mastoid instruments, as used by Mr. C. A. Joll and Mr. F. F. Muecke; Ironside's portable gas, oxygen, and ether apparatus; Phonophore stethoscopes; a special self-retaining retractor with adjustable blades; a universal battery for illuminating instruments needing 1½ to 8 volts; a syringe for regional anæsthesia; a new model of the Zund-Burguet electrophonöide apparatus; and a special combination pocket set of electrically lit examination instruments for eye, ear, nose, and throat.—[39 and 87] Down Bros., Ltd. (21 and 23, St. Thomas's-street, S.E. 1), showed a selection of surgical instruments and appliances, including many in stainless steel. Among the latter is a new instrument table. Putti's orthopædic table, gouges, and chisels; Howarth's bronchoscopy set; and Ivan Magill's new portable intratracheal apparatus merit special mention.—[112] The Genito-Urinary Mfg. Co., Ltd. (64, Great Portland-street, W. 1), had a series of surgical and optical instruments, with London-made lenses; boilable cystoscopes of several patterns, including Mr. J. Swift Joly's new model universal, with retrograde attachment for diathermy, and cysto-urethroscope for examination and operation in the bladder and posterior urethra; a large model diathermy machine with dry spark-gap; Chevalier Jackson's instruments; and a new electric steriliser for ureteral

catheters. As sole agents in Great Britain, this company had a show of drainage-tubes by J. Eynard, Paris.—[110] Holborn Surgical Instrument Co., Ltd. (26, Thavies Inn, E.C.1), displayed a selection of surgical instruments in stainless steel and electro-medical apparatus, including the latest models of diathermy electrodes, especially a new Stebbings pattern for prostate; Holme's and Beck's naso-pharyngoscopes; posterior urethral tubes for Harrison's aero-urethroscope; an illuminated corneal magnifier; and French's blood-aspiration apparatus and needle with cutting edge on back for easy introduction, tapering bore, and smooth lumen.—[27] Mayer and Phelps (Chiron House, 59/61, New Cavendish-street, W.1) showed many all-British instruments, including the Chiron chloroform inhaler, designed to eliminate all possibility of pumping out liquid chloroform; Dougal's bladder retractor for Cæsarean section; Guthrie's cheek retractor; Ede's tonsil-suturing forcep, which enables the knot to be tied outside the mouth; various gastro-intestinal instruments, notably Max-Page's pyloric forceps and Brown Kelly's modification of Gottstein's dilator for cardiospasm. A demonstration model of Rowling's anæsthetic outfit for supplying a warm atmosphere of oxygen, nitrous oxide, or carbon dioxide, or any combination of these, with or without chloroform, was working beside the stand.—[93] Smith, Hurford, and Drysdale (21, Lauriston-place, Edinburgh) showed surgical instruments and appliances, specially drawing attention to those by Edinburgh surgeons, including Prof. D. P. D. Wilkie, Mr. C. W. Cathcart (a low pressure steriliser), and Mr. Norman Dott.—[90 and 91] Ogilvy and Co. (20, Mortimer-street, W.1), as agents for Stille, of Stockholm, showed for them an inexpensive operating table with foot pump elevating gear, and high grade instruments, many in stainless steel.—[64] John Weiss and Son, Ltd. (287, Oxford-street, W.1), pointed out among their exhibit of instruments De Martel's intestinal clamp, Sinclair's instruments for intracapsular extraction of the lens, Canny Ryall's cysto-urethroscope with specially designed flexible shaft forceps and scissors, and a flexible, boilable lamp for rectal or bladder work.—[56] A. Young and Son (57, 59, 61, Forrest-road, Edinburgh) showed general and surgical instruments in large variety. The firm was associated with Simpson and Lister. Among hospital furniture was exhibited the Morrison bed frame, electric water-heaters and sterilisers, and a soiled dressing bin with pedal.—[9] Theodore Hamblin, Ltd. (15, Wigmore-street, W.1), exhibited a number of ophthalmic instruments, including a student's luminous ophthalmoscope convertible to non-luminous pattern, Lister hand projection lamp with transilluminator, Hertel exophthalmometer, and a new Worth amblyoscope with original pictures.

(To be concluded.)

DONATIONS AND BEQUESTS.—The Vice-Chancellor of the Chancery of Lancaster on July 25th approved payment of bequests under the will of Mr. William Fletcher Rogers, who left estate proved for probate at £76,214, and directed that the residue, £47,000, should be distributed among deserving charities in Cheshire at the discretion of his two sisters and his executors. Amongst the bequests are: £6300, Liverpool Open-air Hospital for Children, Leasowe; £5670, Victoria Central Hospital, Wallasey, and Wallasey Dispensary; £5558, Wallasey Cottage Hospital; £5670, Birkenhead and Wirral Children's Hospital; £2000, Birkenhead Borough Hospital; £1000, Chester Council of Social Welfare; £700 each, Nantwich and District Cottage Hospital, Crewe Memorial Cottage Hospital, Hoylake and West Kirby Queen Victoria Memorial Cottage Hospital and District Nursing Association, and the Heswall Branch of the Royal Liverpool Children's Hospital; £600 each, Wallasey Invalid Children's Hospital and Wallasey Police Distress Fund.—Mr. James Guthrie, Dundee and Broughty Ferry, merchant, on the death of his wife left, among other bequests, £2000 to the Dundee Royal Infirmary to endow a bed in memory of his parents, and £500 each to the Dundee Convalescent Home, the Sidlaw Sanatorium, the Dundee Sick Poor Nursing Society, and the Royal Victoria Hospital, Dundee (for the out-door relief fund).

Reviews and Notices of Books.

THE THOMAS SPLINT.

By MEURICE SINCLAIR, C.M.G., M.B., Ch.B. Edin., late Major, R.A.M.C.; Specialist in Fractures and Orthopædic Surgery to St. James's Hospital, London. With a Foreword by Sir ROBERT JONES, K.B.E., C.B., F.R.C.S. London: Humphrey Milford. 1927. Pp. 168. 15*s*.

THIS book is a real contribution to the surgery of fractures, and could only have been written by a surgeon with the unique experience of the author. Major Sinclair was quick to grasp the principles of application of this useful splint, which was invented by Hugh Owen Thomas, and the numerous possibilities of its adaptation to many needs. By painstaking work Major Sinclair has been able to standardise the use of the splint in a way which makes it a simple procedure to apply it to many varieties of fracture. So adaptable is the Thomas principle that this book might well be called a treatise on fractures of the long bones.

Many interesting statements are made. We read that direct bone extension is necessary in 15 per cent. of fractures of the femur, and that movement of the knee joint of 90 degrees and more is possible in the majority of cases after complete immobilisation for five or six weeks. In the description of the Thomas splint for the leg the lowest level of the ring is stated to be at the junction of the ring and inner upright. Surely the lowest point of the ring should be at the point where the tuber ischii comes in contact with the ring, so that naturally, with any displacement, this bony point of counter-extension will always tend to slip back and remain in contact with it. On page 57 the principle of Thomas is frankly abandoned in the early treatment of fractured femur because of the discomfort of the necessary pressure on the tuber ischii. The method recommended is no better than simple extension in a trough. The jettisoning of Thomas's method is quite unnecessary, as the pressure on the tuber ischii can be relieved to any extent (it should never be quite compensated for) by pulley extension from the lower end of the splint. Such traction is actually recommended for old people on page 58 without apparent realisation of the fact that careful graduation of the pull allows the Thomas principle to be preserved. We are glad to see the author insists that mechanical extension from the tibia is preferable to extension from the femoral condyles.

Fractures of the lower end of the humerus are always very difficult to treat. It is therefore with interest that we find Major Sinclair asserting that better results can be obtained by straight extension in a Thomas splint than by open operation. His fixed and movable elbow joint splints for fractures of the humerus are most ingenious and would seem to meet every requirement of these fractures. His modification of the Thomas arm splint, the umbrella splint, should be more often seen in use. It is an important addition to the appliances at our disposal. We congratulate the author on the production of a very practical and original guide to the management of fractures of the long bones. The methods described, complicated as they may appear from the illustrations, which are many and well drawn, are in reality quite simple.

DIE GASTROSKOPIE.

By Dr. ROGER KORBSCH. Chefarzt des Elisabeth-Krankenhauses, Oberhausen. Berlin: S. Karger. 1926. Pp. 76. M.4.20.

THIS is a short but valuable monograph describing the technique of gastroscopy as followed by the author, and the appearance of the stomach in health and disease. The author uses an instrument of his own pattern with a soft extremity, the passage of which he declares to be almost without danger.

He has performed, in fact, 300 gastroscopies without a single mishap. These examinations were carried out under local anæsthesia, but endoscopy of the stomach obviously requires considerable skill in the operator and coöperation on the part of the patient. Occasionally, more than one attempt has to be made before it can be carried out. Whether gastroscopy will become as simple a procedure as cystoscopy will depend upon future developments, but it would seem that Dr. Korbsch has done something towards making it a commonplace method.

In an interesting chapter on the genesis of penetrating ulcers of the stomach he gives reasons for believing callous gastric ulcers to arise from chronic gastritis. In this latter condition he has observed simple surface ulcers and all stages between these and ulcers accompanied by a demonstrable niche in the radiogram. He declares that the persistence of typical gastric ulcers depends upon the situation in which they arise rather than in any specificity of origin.

A MANUAL OF GENERAL MEDICAL PRACTICE.

By W. STANLEY SYKES, M.A., M.B., B.Ch. Camb., D.P.H. Lond. London: H. K. Lewis and Co., Ltd. 1927. Pp. xi.+216. 7*s.* 6*d.*

Dr. Stanley Sykes has provided the medical profession with a readable and competent book. It contains a variety of information of practical value, well arranged, and on the whole treated with due proportion—the author must have had much difficulty in deciding what to insert and what to omit in so small a volume with so large a reference. The hints as to the conduct of general practice, though very brief, are sound, while the chapters on the superstitions and idiosyncrasies of patients, and that on the occurrence of disease in general practice, should be really informing to the young practitioner. To treat of diagnosis, prognosis, and treatment in some 30 pages is to acknowledge that only teaching of the most cursory nature can be imparted, but the information has been shrewdly selected with an eye upon practical purposes, and is well supplemented by a section upon certain strange and unusual symptoms and happenings that may find reflection in any doctor's case-book. There are chapters on anæsthetics in general and on anæsthetics in practice, some reflections upon vaccination and vaccines, and on the incidence of venereal diseases, and a chapter on midwifery which is prefaced rightly by a note that criticism of the midwifery of the general practitioner appears always to come from those who have not been in general practice.

This is an interesting and useful little manual written from the general practitioner's point of view, and laying stress on what the author calls "non-hospital diseases." It should find many readers.

THE ANATOMICAL BASIS OF DISEASE.

Anatomische Grundlagen wichtiger Krankheiten. Second edition. By Dr. LEONHARD JORES. Berlin: Julius Springer. 1926. Pp. 525. M.48.

THE second edition is almost double the size of the previous one, and, owing to the addition of new subject matter and the altered arrangement, the book is practically a new one. The aim of the author, in which he succeeds admirably, is to correlate pathological anatomy with clinical findings, and to give the physician a picture of the physical structure underlying disease. After a short but instructive introduction on cellular pathology and local and general infection, he considers disease under the following headings: metabolic disturbances, derangements of internal secretion, localised circulatory disturbances, inflammatory and infectious diseases, diseases due to animal parasites, post-infective conditions and toxic changes, regeneration, wound healing and tissue reaction to foreign bodies, tumours, and anatomical defects. An appendix deals with the chondrodystrophies and ectopic gestation. The book contains an immense amount of interesting information which the author has had difficulty in arranging. For example, the section on infective conditions and toxic changes deals, amongst other things, with endocarditis, encephalitis, syringomyelia, acute nephritis, anæmia, metallic poisoning, phosphorus and salvarsan poisoning, ergotism and botulism.

The book is profusely illustrated with excellent photographs of pathological specimens and coloured drawings, and can be recommended to pathologist and clinician.

PSYCHO-PATHOLOGY OF TUBERCULOSIS.

By D. G. MACLEOD MUNRO, M.D., C.M., M.R.C.P. Edin. London: Humphrey Milford, Oxford University Press. 1926. Pp. 92. 5*s.*

IN the preface of this book Dr. D. G. MacLeod Munro frankly and courageously commits himself to the view that there is a definite psychical state which may be fairly referred to as characteristic of tuberculosis. The novelists have made much of this state, but the sober pages of medical literature are by no means so clear, as Dr. Munro's bibliography shows. Any toxin circulating in the body is liable to produce changes in a patient's temperament. This is a commonplace of clinical medicine. But to attempt to correlate these changes with any theory of psychology, or to identify them with the toxin of tuberculosis in particular, is woefully hard. Indeed, Dr. Munro's book seems to demonstrate that it cannot be done with our present knowledge. The facts are all too vague, and the author himself has not really succeeded in producing a clear picture of the psycho-pathology of tuberculosis. Medical opinion does not appear to be any more definite on the question of phthisis and insanity. The view is expressed in this book that there is some ætiological association between tuberculosis and insanity from the point of view of inheritance. Here, again, the author has to fall back on vague clinical impressions. The book also contains three chapters on tuberculosis and genius, and a concluding chapter by Dr. Leonard Browne on psychotherapy in tuberculosis. The first two of these chapters are brief descriptions of the lives and works of certain well-known writers who are known to have suffered from pulmonary tuberculosis; the last one gives practical advice as to the treatment of insomnia, the phobias, mental instability, and so forth, in phthisis by various psycho-therapeutic measures. The book is an honest attempt to deal with an elusive subject, in which there is really not yet available sufficient classified material to provide a definite message.

BIRTH CONTROL.

By JOHANN FERCH. Translated by CHRISTIAN ROLAND. With an introduction by MAUD ROYDEN. London: Williams and Norgate, Ltd. 1927. Pp. 124. 3*s.* 6*d.*

THIS book is written by the foremost Austrian protagonist of birth control. Though the method of election of Herr Ferch is such as might provoke criticism on medical grounds, the claim is made that it is being practised with complete success in the 50 districts into which Vienna has been divided by the League for the Protection of Motherhood, of which the author of this book is the president. The method consists in the fitting upon the cervix of an occlusive cap made of silver or other incorrodible metal by a doctor every month. When her menstrual period is over, the woman visits one of the centres of the League, her cervix is ascertained to be healthy and the metal cap is adjusted. This is left in situ until the beginning of the next menstrual period when it is removed by the woman, and left off till the end of the period, when it is again fitted by a doctor. It will be seen that this method requires that the woman shall make a visit every month to a birth control centre. It is claimed of this technique that lacerations of the cervix are never caused by a properly fitted pessary, and that the risk of pathological discharges being retained is small, since the

cap is lifted off the cervix by the pressure of the secreted matter. If the cervix is of a shape which does not admit of such a pessary being fitted, a "Dutch" pessary, made of rubber, is recommended. The rubber cervical cap is not mentioned. Vaginal douching after coitus is also advocated, but soluble pessaries are held to be of little value.

To this book an introduction has been written by Miss Maud Royden, and a biographical note upon Herr Ferch by Christian Roland, the translator. These writers dissociate themselves from a plea, made by the author, that abortion during the first three months of gestation should be sanctioned by law. Mr. Roland considers that such legislation would be in the highest degree inapplicable to this country, though he explains that during the famine years in Austria, when all children born were destined to get rickets, and when each birth diminished the average quantity of food per person, it might well be regarded as preferable to induce an abortion than to bring a living child into the world. A further argument in favour of this legislation in Vienna is the prevalence of quack abortionists, who are apparently permitted to obtrude themselves before the public notice more than in other countries. Dr. Ferch holds that the present legal position with regard to abortion results in numerous people among the poorer classes in Austria resorting to these quacks, to the great detriment of their health.

DIAGNOSIS AND THERAPEUTICS OF DISEASES OF THE STOMACH.

Diagnostik und Therapie der Magenkrankheiten. Eighth and ninth edition. By Prof. Dr. I. BOAS. Leipzig: Georg Thieme. Pp. 817. M.42.

THE eighth-ninth edition of this classic has been greatly revised and brought up to date. The author has added a chapter on occult blood, while there is a considerable amount of new material supplied on the use and value of X rays. Peptic ulcers, both of the stomach and jejunum, have been extensively considered, while the sections on malignant tumours, benign tumours, and syphilis of the stomach have been subjected to searching revision. In this work Prof. Boas considers in detail all the various diseases of the stomach, and his opinions may be regarded as authoritative. The contents are divided into two main parts. The first deals with general examination, both physical and chemical, and contains a section on general treatment and considerations of diet. In the second part the various diseases are considered separately in detail, the sections on symptomatology and treatment deserving special praise. The section on dietetics is written with great minuteness, coloured tables showing graphically the fat, carbohydrate, and protein content of numerous foods and beverages.

The book is well illustrated, and there is a complete index both to subjects and to authors. References to the literature are given at the bottom of each page. Such a complete and exhaustive monograph on the diseases of the stomach cannot fail to be of value to physician, surgeon, and pathologist—the lessons might well be conveyed through them to the public in intelligible form, at a time when the diet of the people is under turbid and turgid discussion.

NURSING MENTAL AND NERVOUS DISEASES.

By ALBERT COULSON BUCKLEY, M.D., Medical Superintendent, Friends' Hospital, Frankford, &c., U.S.A. London: J. B. Lippincott Company. 1927. Pp. 312. 12*s.* 6*d.*

THIS latest addition to Lippincott's series of nursing manuals has been written to comply with the revised standard curriculum for American training schools (1926), and in it Dr. Buckley has given a comprehensive survey of the subject. The author specially stresses two points: (1) the need for treating each separate patient as an individual, and (2) the physical basis of all mental illness. These ideas are developed throughout the book, which is divided into four parts and is exceedingly well illustrated. The first part is concerned with a biological introduction and a clear and concise description of the central nervous system; the diagrams in this section are worthy of special mention. The other theoretical portions of the book are not so well defined, and are more difficult to follow; the student may well become confused by the introduction of somewhat discursive psychology. The second half of the work is devoted to a brief survey of the individual psychoses and the diseases of the nervous system; the nursing care required in each particular group is indicated. There is included a chapter on special nursing procedures, but the space devoted to actual nursing seems strangely inadequate for a work of this kind.

The general effect is that of a text-book of psychiatry which has been cut down, with brief hints on nursing interpolated, rather than that of a book primarily written for the nursing profession. The frequent use of block lettering for emphasis is disconcerting.

JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY.—April, 1927: The bulk of this number is occupied by a minute criticism of Barraquer's operation for the intracapsular extraction of cataract, by J. Russell Smith, the son of Lieut.-Colonel H. Smith, whose intracapsular operation is also well known. There is no doubt that in the hands of their inventors both these operations have proved remarkably successful. The Barraquer operation, however, has been tried on a large scale in India with results that can certainly not be considered encouraging. No doubt everything depends in this operation on the technique of the surgeon and upon whether or not the complicated instrument employed is in perfect order.—The number also contains a note by R. R. James on a case of "Krukenberg's Spindle," a rare corneal condition of uncertain causation, generally bilateral but in this case unilateral. The drawing appended will be useful for reference.——May, 1927: Parenchymatous Keratitis in Trypanosomiasis in Cattle and in Dogs, and in Man, by H. Neame. The evidence shows that this infection bears the closest resemblance clinically and pathologically to distemper keratitis in dogs and to syphilitic interstitial keratitis in man. —There are two papers on cases of atypical sympathetic ophthalmitis. D. J. Wood, of Cape Town, records a case in a fair-haired girl of 9, who contracted gonorrhœal conjunctivitis from a girl with whom she was playing. The cornea perforated with prolapse of iris, and in stitching a conjunctival flap over the hole the lens capsule was wounded, and most of the lens escaped. Rather more than two weeks later there were fine keratic precipitates in the other eye, and other signs of sympathetic, only discoverable with the slit-lamp. The exciting eye was promptly excised and energetic treatment applied. This consisted of (1) weekly injections of salvarsan; (2) six injections of autoserum; (3) atropine and dionine locally. In spite of the fact that definite signs of sympathetic were present in the sympathising eye before the excision of the exciting eye, the ultimate result was good, normal vision being restored. The other case is reported by T. Harrison Butler and J. Jameson Evans. It was not a true case of sympathetic ophthalmia, but a case of sympathetic inflammation, associated with intraocular sarcoma. A severe iridocyclitis in both eyes was due to toxins liberated by the necrosing action of the sarcoma. After excision of the exciting eye there was a rapid improvement in the sympathising one which eventually regained a vision of 6/12.—D. J. Wood: Calcium Deficiency in the Blood with Reference to Spring Catarrh and Malignant Myopia. This paper throws new light on both these diseases. Spring catarrh is explained as a reaction to climatic conditions—dryness, heat, and dust—in young children who have too little calcium in their blood. Small doses of parathyroid gland are found to increase the calcium-content to normal and by

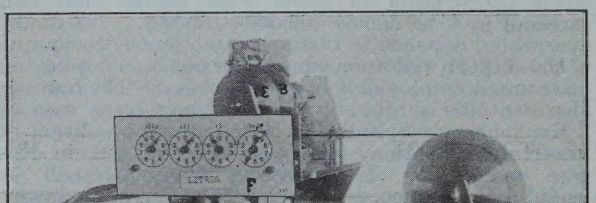
this means a cure is effected. The author suggests that a calcium deficiency in the blood may have some connexion on the one hand with a weakening of the cornea and development of conical cornea, and on the other with weakening of the sclera and development of malignant myopia. If this suggestion can be confirmed the matter is one of great importance, but the evidence so far produced is not very convincing.

New Inventions.

AN INTEGRATING DEVICE FOR CLOSED-CIRCUIT RESPIRATION APPARATUS.

WHEN performing experiments with respiration devices of the closed-circuit type, such as the Benedict metabolism apparatus or the U.S. Air Service "rebreather," it is sometimes desirable to know the total pulmonary ventilation as well as the amount of oxygen consumed by the subject during the period of the test. The amount of oxygen consumed is, of course, equal to the decrease in volume of the gas in the apparatus, and is read off directly from the scale on the instrument. The total ventilation may without appreciable error, be considered as the tota

FIG. 1.

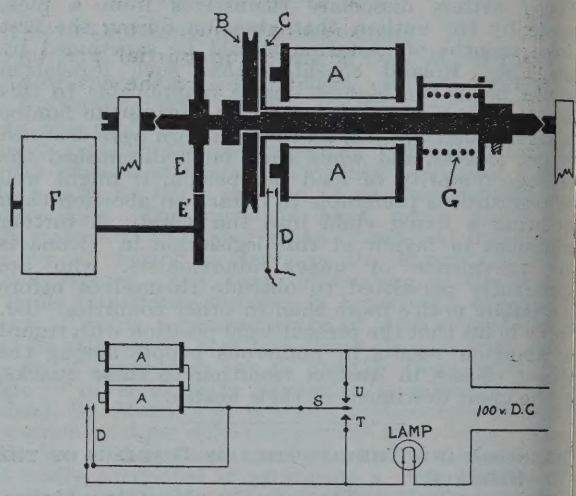


volume of all the inspirations, and may be calculated by mechanically integrating all the down-strokes of the spirometer bell. The simplest device for accomplishing this result is a ratchet wheel (Ludwig's work-adder) attached to the pulley over which the spirometer cord passes, but ratchets have the disadvantage of being both inaccurate and noisy.

The integrating apparatus here described was designed for use with the standard Benedict closed-circuit metabolism apparatus. It is attached to the top of the spirometer frame in place of the usual pulley-arm and pulley (Fig. 1). The down-strokes of the spirometer bell (inspirations) are integrated by means of a gear-train (E and E′) actuated through the agency of a magnetic clutch (C) mounted on the pulley-shaft (Fig. 2). The clutch is controlled by a tambour contactor (W) attached to the mouth-piece (P) of the metabolism apparatus (Fig. 3). During inspiration the clutch (C) engages with the pulley (B) and motion is transmitted through the gear-train (E and E′) to the dials (F). At the beginning of expiration the clutch is withdrawn and the pulley turns freely on the shaft during the expiratory phase. The total ventilation during the period of the test is read in litres directly from the dials.

In detail, the operation of the mechanism is as follows: As expiration begins a wave of air-pressure passes from the mouthpiece (P) along the tube (R) toward the spirometer (Fig 3). Part of its energy is transmitted to the membrane of the tambour (W which rises and causes a momentary electrica connexion between the contacts (S) and (T). Thi energises the magnets (AA) (Fig. 2) and the iro clutch (C) is withdrawn. In this movement the bac of the clutch-plate compresses the auxiliary contact (D), which are connected in parallel with (S) and (T and a steady flow of current is maintained throug

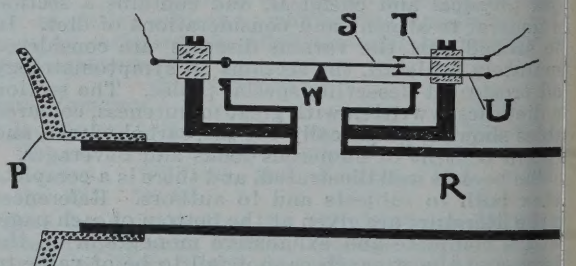
FIG. 2.



the magnets, regardless of any possible vibratio of the tambour contacts. Thus, during expiratio the clutch is held firmly against the pole-faces the magnets, the shaft, gears, and dial-pointers a at rest, and the pulley turns freely on the shaft.

At the beginning of inspiration the wave of negativ pressure draws the tambour membrane downwar making contact between (S) and (U). This shor circuits the magnets and releases the clutch, whic being pressed forward by the spring (G), instantl engages with the pulley. In this movement th pressure on the auxiliary contacts (D) is release and the circuit is broken. The pulley, clutch, an

FIG. 3.



shaft now turn together as the spir meter bell descends, and the motion transmitted through the gear-train (E a E′) to the dials.

Inasmuch as the magnet coils are short-circuite at the beginning of each respiration, batteries a not used. Current is supplied from the 100-vo direct current mains, and its flow limited by th inclusion of a 50-watt lamp in the circuit. Sin it requires an appreciable length of time for th wave of air-pressure to traverse the length of th tube connecting mouthpiece and spirometer, th quick-acting clutch mechanism will have complete its operation before the spirometer begins to mov Hence there is no error due to lag in the apparatus.

The instrument was built by Mr. S. W. Bus Oxford Scientific Instrument Works, Wheatsheaf-yar Oxford.

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Department of Pathology, University of Oxford.

THE LANCET.

LONDON: SATURDAY, AUGUST 13, 1927.

HE TRANSFER OF PRACTICES: A LOAN SCHEME.

In the section dealing with the transfer of practices, ntributed to "The Conduct of Medical Practice" y Mr. O. A. HEMPSON and Mr. C. M. OLIVER, licitors to the Medical Defence Union, it is pointed ut that the majority of medical men have at some me or other in their professional career to consider e purchase of a practice or of a share in one; and e writers show that in this vital matter an initial istake may have disastrous results for an unwary rchaser. They proceed to classify the points which ve to be remembered by the purchaser and by the ndor, as they bear on the class of practice which is be transferred; they discuss the merits of part rchase and the methods of payment. Whatever the pe of the practice may be, and whatever proportion its receipts is being made the subject of transfer, e purchaser will require full information before he in a position to judge whether any practice is ely to satisfy his requirements, while the vendor can ly be placed in a substantial position for the sposal of his interests if he has so conducted his siness affairs that he can prove the justice of the ice which he demands. In reaching any fitting rangement these are the essential preliminaries—so vious that only their more than occasional neglect stifies their mention.

But it frequently happens that, the ground having en cleared in a satisfactory manner, and the rchase price having been arrived at upon the proved sis of average gross receipts, the purchaser is unable find immediately the capital sum necessary to nplete the transaction. This is a familiar situation, d it follows that payments upon some agreed plan instalment are frequent. Contracts to this effect n be made readily where only a partial transfer of practice is in contemplation and where the future rk of the practice will be carried on through rtnership, but in these circumstances also a part yment of the full price is generally required. methods of payment by instalment, like all nplete purchases, must be founded upon a thorough estigation of the receipts and close scrutiny of the spects, and be made the subject of a properly wn legal instrument. In the majority of cases the ct of this will be that certain amounts of money be due by specified dates in accordance with any ion given to the purchaser, and to meet these ms adequate security will have to be found; so t whether the whole purchase price or some balance t, in bulk or detail, be required, the purchaser may urgent need for what the circulating usurer calls mporary accommodation." It has before now pened that money has been obtained upon rtunate terms to meet the situation, with the lt that the in-comer to the practice starts loaded n an uneconomical debt. It is true that this is n avoided, because the purchaser and the vendor equally familiar with the fact that substantial tal sums are often not forthcoming in bulk tly when the contemplated partnership might ruitful in results, so that arrangement through the medium of experienced medical agents can usually be effected. But some simple and recognised method for the provision of properly secured loans would be a valuable departure and of great convenience to many practitioners, not necessarily, moreover, those commencing practice.

At a meeting of the Committee of Management of the Medical Insurance Agency last March a scheme whereby practitioners may obtain financial assistance for the purchase of partnerships or practices was presented, and if worked out carefully it ought to solve many problems, which are sometimes urgent as well as delicate. The general principles of the scheme are quite simple. A proportion of the capital required for the purchase of partnerships or practices is to be provided by means of a loan, the arrangements for which will take place between the Agency and the doctor concerned. Full details of the practice will have to be supplied to the Agency, even though this ground may already have been covered to their common satisfaction by the contracting parties, for it is clear that these parties might, as between themselves, overvalue the property and thus seek a loan upon improper security. When the Agency is satisfied that a loan can be officially approved in respect of the sum it is proposed to borrow, which is one warranted by the receipts, and when the Agency is informed what sum the purchaser can find from his own resources, a life insurance policy will be taken out as collateral security for a loan. Only borrowers who are physically fit for life assurance can be helped on the most advantageous terms, and it is proposed to take out the life insurance policy for one and one-half times the amount of the loan, while at the same time a sickness policy is to provide the amount of weekly benefit equalling the total of the obligations created by the loan if the borrower is laid by and unable to continue earning. Thereafter the payment of interest and the gradual repayment of principal can be provided for by equal quarterly instalments spread over the period of four to ten years for which the loan is granted. It will be seen that there is nothing in this scheme which departs from the process, more ordinary in the age of private banking than it is now, of borrowing upon a sound business prospect with the collateral security of a life-policy. The Medical Insurance Agency is filling the useful rôle of guarantor. Having satisfied itself that the professional prospect is sound, the Agency proceeds to back its opinion by a short-term loan, protecting itself by outside assurance against its client's illness or death. The client is trebly advantaged: first by an expert opinion that he is buying a sound thing, secondly by a loan on reasonable terms (the interest charged is about 8 per cent.), and thirdly by the obligation to make wise provision against accident, illness or premature death.

THE DANGEROUS DRUG TRAFFIC.

THE efforts made by international coöperation to control the traffic in drugs of addiction and to limit production to medical and legitimate requirements have not hitherto been rewarded by very satisfactory results. The convention drawn up at Geneva in February, 1925, after two rather acrimonious conferences, has not yet come into operation. By its own provisions it cannot be put into force until it has been ratified by ten of its Signatory Powers, including seven of the principal States represented on the Council of the League of Nations, two of which must be States having permanent representation thereon. According to recent replies in the House of Commons, the only

States besides Great Britain which have at present deposited ratifications are the Netherlands, Czechoslovakia, Bulgaria, Poland, Portugal, the Sudan, and San Salvador. The sanguine anticipations of the President of the second and more important of the Geneva Conferences of 1924–25, that the new convention would "greatly strengthen The Hague Convention of 1912," and "accelerate from day to day and from month to month" the international control of the traffic in dangerous drugs, have not as yet been realised. An astute critic of the Geneva Conferences, Mr. J. P. GAVIT [1] would appear, thus far, to have been justified in his surmise that "the agreement of the first Conference represents no progress worth discussing, and the new drug convention adopted by the second is a thing of printed paper with the odds heavily against its ever being anything else."

Meanwhile, the Home Office has wisely thought fit to issue to the Press a report on the work that is being accomplished under the provisions of the International Opium Convention drawn up at The Hague in 1912, and these have been ratified by nearly every sovereign State in the world whether a member of the League of Nations or not. The report is one of a series made annually by the British Government to the League of Nations; it deals with work carried out in the year 1926, and is the first of the series to be published. Under the Dangerous Drugs Act of 1920, and subsequent amending Acts, which gave effect to the provisions of The Hague Convention from the national standpoint, the internal control of the manufacture, sale, distribution, import and export of opium, morphia, heroin, cocaine, and other substances is well in hand, and if other countries which are parties to The Hague Convention were to follow the example of Great Britain in regard to legislation and administration great progress might be achieved. Thus it is gratifying to learn that the exports of British-manufactured morphia, which amounted to 14 tons in 1914, have been reduced to 73,289 oz. in 1926—a diminution of more than five-sixths. It appears that seven firms are licensed to manufacture medicinal opium, but the preparation of morphine is restricted to two firms, both situated in Edinburgh. Indian opium, which was formerly regarded as too poor in its morphia content, was in 1926 imported into Great Britain in larger amount (95,173 lb.) than was Turkish opium (40,885 lb.). Some Indian opium (3040 lb.) was re-exported to the United States. Steps have been taken to ascertain the consumption of opium, morphia, heroin, and cocaine in hospitals in Great Britain in 1925 The estimated amounts were as follows: Opium, 750 lb.; morphia, 1149 oz.; heroin, 403 oz.; cocaine, 1669 oz. When attention is directed to the international aspect of the traffic in these dangerous drugs it is not reassuring to learn that "information received by His Majesty's Government during the year shows the illicit traffic in drugs continues on a large scale." Seizures in some cases of thousands of ounces of the smuggled alkaloids have been made. The tricks of illicit traffickers are manifold and ingenious. Walking-sticks, pianos, bedsteads, chairs, concealed belts, confectionery have been variously employed to elude customs officers and preventive men. False labels and unauthorised import certificates have been resorted to. Powerful syndicates are believed to conduct the operations of this contraband trade in the Far East, consisting, as was stated at Geneva, of "coteries of people willing to poison their fellows for profit."

All available evidence serves to confirm the view that the world production of these dangerous drugs is greatly in excess of the world's legitimate need, and that the surplus production is easily diverted into illicit and pernicious uses. Both the Council and the Assembly of the League of Nations have recorded the general desire to reduce and restrict production to medical and legitimate purposes, while a joint subcommittee of its Health and Opium Committees proclaimed that "the medical use should be considered the only legitimate use, and that all non-medical use should be regarded as an abuse." The correlation of production and legitimate use of these drugs is necessarily and essentially a problem demanding vigilant international coöperation. The question is to be discussed at the meeting of the Inter-Parliamentary Union to be held in Paris next month. It behoves the representatives of the many legislatures which will there assemble to move their respective Governments to more active effectuation of the international obligations by which they have already bound themselves.

[1] Opium. John Palmer Gavit. Routledge. 1925.

INTESTINAL OBSTRUCTION.

DEATH from intestinal obstruction presents certain peculiar features. Its onset is inevitable, but its arrival is often unexpected. Suddenly and without warning the patient's condition gets worse, and he succumbs within a few hours; so rapidly does he go downhill that any attempt to save him by surgical operation is a forlorn hope. Very much work has been done to elucidate the pathology of intestinal obstruction but its mechanism still remains obscure. Mr. ST. LEGER BROCKMAN in his Arris and Gale Lecture, published elsewhere in this issue, brings forward some experiments from which he infers that the prevention of the passage of bile along the alimentary canal is one of the main causes of the symptoms which characterise the condition. After confirming G. H. WHIPPLE'S experiments, which show how fatal it is to leave a closed duodenal loop although continuity of the alimentary canal is maintained by a gastro-jejunostomy, he went further and found that if, instead of a gastro-jejunostomy, a lateral anastomosis is made between the duodenum just above the loop and the jejunum below, the animals survive much longer and do not show the rapid and severe symptoms associated with the Whipple experiment.

To test his simple explanation of these phenomena Mr. BROCKMAN tried administration of bile, by the rectal route, to patients with intestinal obstruction. Thirteen patients were treated in this way and one four died; in those who recovered the vomiting toxæmic symptoms, and lethargy were banished. The dose given was 2 oz. of bile in 4 oz. saline every four hours. Relief was almost immediate and when in several instances administration of bile was stopped, the symptoms returned, only to be dispelled again by resumption of the bile enemata. Human bile seemed to be much more effective than ox-bile, which gave rise to abdominal pain necessitating the use of morphia. The clinical histories of the three successful cases reported will be submitted to minute and critical examination. The first was that of a man who had had a gangrenous appendix removed some days previously. His symptoms disappeared under treatment, but the account leaves the reader in doubt as to whether he was suffering from obstruction of the intestine or from acute dilatation of the stomach, and it is uncertain whether his recovery was due to natural disappearance of the obstruction to the stomach or ileum or may be attributed to the

eatment. The second case followed such an unusual urse that it is difficult to attribute the result to ything except the treatment employed. The mptoms came on after an operation for appendicitis, d on the fourth day the patient had stercoral miting and hiccup. There was no result from an ema. Administration of bile relieved the symptoms d kept them in abeyance until the tenth day. that day he had no vomiting, and only slight dominal distension; his pulse-rate was 70; felt well, read the paper and smoked; yet a arotomy showed "an absolute obstruction by an ental band about six inches from the ileo-cæcal lve." In the third case, again, the condition may ite well have been acute dilatation of the stomach obstruction due to adhesions, which as every surgeon ows, often recover spontaneously with the subsidence the pathological process in the right iliac fossa. ry remarkable, however, is one of the failures. woman of 65 was operated upon for strangulated nia, but the surgeon did not relieve the obstruction he did not detect a strangulated loop "in the other f of the bilocular hernial sac." With complete chanical ileus this patient was for 16 days kept e and remarkably fit by means of bile injections. Undoubtedly the procedure merits further inquiry l trial, but it is to be hoped that investigators will alive to the fact that (as Mr. BROCKMAN shows) symms of true mechanical obstruction may be masked such an extent that operative relief is delayed il it is incapable of saving the patient's life.

Annotations.

"Ne quid nimis."

SLEEP.

ONE of the sessions of a recent neurological congress Paris was devoted to the subject of sleep in its mal and pathological aspects.[1] Since the fundaital work of Piéron in 1912, knowledge of sleep advanced mainly in two ways: Pavlov's experiital researches have led to the conception of an bitory mechanism, and clinical observations, ecially on cases of lethargic encephalitis, have ght new evidence in favour of the existence of a lating centre. The openers of the discussion—A. Tournay and Prof. J. Lhermitte—had evidently much influenced by these newer contributions he subject. Dr. Tournay, in dealing with the siological side, first referred to the state of the cular and sensory systems and of the vegetative tions during sleep, and then discussed the acteristics and variations of sleep, its immediate ses, and the nervous mechanism by which it is ced. The somatic musculature, he said, seems e more or less relaxed, but its relaxation is not orm or constant. In children sleeping with their closed a degree of contraction of the flexors of fingers has been observed. It must be noted that the masticatory muscles are in a state of s and that the sphincters preserve their function; raction of the orbicularis oculi helps to keep the closed; the eyeballs are turned upwards and vards by muscular contraction and the activity he circular fibres of the pupil causes myosis. lon reflexes are in general diminished. Babinski's and the defence reflexes are present. Sensation general diminished, the threshold of excitability g greatly increased; hearing is the sense least ted. Breathing is slower and deeper, inspiration g longer and deeper, and expiration relatively ker than in the waking state, and ventilation is eased. The heart's action is slower by reason of a longer diastole and the blood pressure is slightly reduced.

The outward appearances of sleep do not warrant more than a presumption that the patient is sleeping. How can it be told that a man is really asleep? Piéron defined the sleeping state as "the absence of spontaneous dynamic activity and of voluntary reactions adapted both to the nature of the excitants and also to the diverse circumstances of place and time." To this Dr. Tournay adds the occurrence of the phenomena already mentioned and their reversal by the application of a moderate stimulus. This condition of being relatively easily aroused and restored to the waking state distinguishes the sleeper from the man who is in a coma or toxic stuporose state. The depth of sleep has been studied by means of graduated auditory stimuli. In most subjects sleep attains its maximum depth about the end of the first hour and thereafter the depth decreases more or less regularly till the moment of waking. But there are some people in whom the pattern is of an inverted type. The sensory side of thought preserves its activity during the time of falling asleep, but the motor or verbal side comes under the influence of sleep much more quickly. The persistence and perversion of sensory impressions produces "images hypnagogiques" which occur during the time of falling asleep and are not the same as dreams.

The immediate cause of sleep seems to be an inhibition of cortical processes; according to Pavlov, "internal inhibition of conditioned reflexes and sleep are one and the same process." Sleep as a pathological condition is to be distinguished from coma and the stupor produced by certain intoxications; real sleep as a symptom of a diseased state is seen chiefly in two conditions, narcolepsy and encephalitis lethargica. Narcolepsy (sudden onset of sleep so that the patient, if standing, falls down) is a symptom which may arise without known cause or may follow encephalitis or trauma, and there is considerable evidence that it occurs as a result of damage to the grey matter in the floor of the third ventricle, especially in its anterior (hypothalamic) portion. The study of encephalitis lethargica suggests that prolonged sleep may be brought about by inflammation affecting some structure in the anterior part of the mid-brain, and it may be that in this region there is convergence of paths leading to and from higher sleep-controlling centres.

ARTIFICIAL ŒSOPHAGUS.

THE condition of an otherwise healthy person condemned to a fistula life on account of an occluded gullet is a pitiable one. Since César Roux, of Lausanne, inaugurated the attempt 20 years ago, there have been a score of cases in which a successful attempt has been made to replace the stenosed œsophagus by an artificial tube extending from pharynx to stomach in the thoracic integument. Dr. A. Fonio reports,[1] from the hospital of Langnau, near Berne, the result after eight years of such an œsophageal plastic operation which has enabled the patient to sit at table and eat like an ordinary person. The history of the case dates back to the year 1908 when after a domestic quarrel the woman swallowed some crystalline permanganate of potash and developed a stricture near the cardia which gradually became impermeable so that for ten years she was dependent on fluid introduced through a gastric fistula. In 1919 Dr. Fonio, in a series of operative measures extending over 17 months, succeeded in improvising a functional œsophagus. In the first stage a piece of thoracic integument 22 × 8 cm. was converted into a skin-lined tube. In the second a piece of transverse colon 15 cm. in length was isolated, with retention of its arterial supply—colon being chosen in order to avoid the danger of gangrene experienced when a loop of jejunum is used for the purpose—to intervene between the stomach and the lower end of the skin tube. If we understand Dr. Fonio aright, it is important to

[1] Presse Médicale, July 13th.

[1] Schweizerische medizinische Wochenschrift, July 30th, 1927.

retain the peristaltic action of this colon tube in the downward direction. Finally, the upper end of the skin tube was sutured to the cut œsophagus through an incision in the neck, the thyrohyoid muscles being sewn into the upper edge of the incision in order to open widely the mouth of the skin tube at the moment of swallowing. Some minor difficulties and accidents were overcome to such effect that in 1921 food after mastication was delivered with lightning rapidity down the air-filled tube directly into the stomach via the section of colon. No retraction or retention occurred at any time in the lower or middle sections of the tube. Between 1921 and 1927, however, the development of a calcareous goitre resulted in gradual closure of the upper end of the skin tube and the necessity of reverting to the gastric fistula; after removal of the goitre patency was restored and the patient returned well nourished to her factory work. The only respect in which she does not now possess normal function is that she cannot vomit. The net result is a striking achievement in plastic surgery although the indications for its employment may not be frequent. It is obviously only applicable in non-malignant stricture, and Roux, who first devised the technique, gave it up later in favour of early and patient stretching of the stricture by the passage of metallic sounds. Biologically the operation is of interest, as it affords an example in later life of the method so familiar in embryonic development of the production of tubular structures by the tucking in of superficial layers of cells.

PROSPEROUS MEDICAL SCHOOLS IN AMERICA.

NEW endowments and gifts have recently made possible the extension and improvement of research and teaching in various American medical schools. The campaign of the "half century committee" of Johns Hopkins University resulted in a total of seven million dollars from 3992 subscriptions, and the General Education Board of the Rockefeller Foundation have given ¾ million dollars for a medical library at the same University. The new library will assemble 50,000 volumes from various departmental libraries, some of which are now a mile or two apart. The building is to be in the Italian Renaissance style, three stories high, and will house 400,000 volumes. It will be dedicated to Dr. William H. Welch, the first dean of the medical school and now director of the School of Hygiene and Public Health. The medical school of the University of Pennsylvania is raising a fund of three million dollars, of which nearly one-half has already been subscribed. This school has just announced the organisation of a new department of pathology which is to be under the direction of Dr. Eugene L. Opie. The medical schools at Albany and Detroit have each completed new six-story buildings which will replace their former domiciles. The teaching hospital at Detroit, now called the Detroit General Hospital, recently opened a million dollar extension. A million dollars has been received for the foundation of a new radiological institute for the Washington School of Medicine. The institute, besides providing facilities for research, will offer treatment with radium and X rays. In New York city a neurological institute is projected which will cost a million and a half, of which more than half has already been pledged. Western Reserve is raising six millions for a medical centre and is already starting to build a new pathological institute. Of these large sums of money a part is provided by the wealthy foundations peculiar to America, but a considerable proportion comes from the alumni of the Colleges themselves. How this is made possible is revealed by a questionaire recently sent out from the University of Oklahoma School of Medicine to 304 of its graduates. Of the majority who replied the monthly income is said to range from $300 to $4000, with an average of $1100. Most of these graduates are practising medicine in their home State. The State medical journal, in commenting on these results, wonders how much of the incomes are derived from the profession of medicine and how much from investments in o If one could believe such prosperity to be shared l graduates from other schools the source of the endowments would not be difficult to discover.

MEDICAL MUNITIONS IN WAR.

THE United States of America have already arrang for the prompt supply of the surgical instruments whi would be needed by the Army should large-scale warfa ever break out again.[1] France is similarly planni ahead, for, as M. R. E. H. Salkin[2] points out in a rece article, surgical instruments are just as important munitions, and the medical department must set in peace-time their patterns, the number that w be wanted, and the depôts in which they are to stored and looked after. It must also arrange f their repair in war and for the replenishment stocks without interference with national productio A census of the surgical instrument industry France has, therefore, been taken. The instrumen are made at three chief centres: Paris, Noge (Haute Marne), and Thiers (Puy-de-Dôme). In Pa are particularly produced instruments of precisio at Nogent knives, scissors, and forceps; at Thi bistouries and cutting instruments. It is in th centres replacements will in war-time be made; repa will be done in other large manufacturing centr Sufficient quantity of the various grades of crucib steel, the raw material of the instruments, must planned for. In 1000 parts of steel 10 to 7 pa of carbon are required for bistouries, 5 to 4 for chise burrs, and the like, 3·5 for forceps. Stainless chro steel is being examined and has given good results far, but has not yet been officially adopted. T industry is carried on largely at home or in sm workshops, but sometimes in factories, and arran ments are being made to give it more protecti France exports at present three-fifths of her producti especially to the Latin countries. English steel, t writer admits, is excellent, but he finds the Engl surgical instruments a little large and less delicat finished than French. France is, however, backwa in suture needles and dental equipment, though th are being encouraged. Surgical instrument maki should, he concludes, be scheduled as a natio industry.

RED CELL AND HÆMOGLOBIN NORMALS

THE statement that the average number of r cells in the human being is 5,000,000 per c.mm. the male and 4,500,000 per c.mm. for the fem has figured in all text-books of medicine and in m special works on the blood and its diseases for the l 75 years. Its tacit acceptance is, as we have alre pointed out,[3] something of a mystery. Proba it will outlast the century, and this in spite of t fact that everyone accustomed to performing bl counts habitually encounters figures far outside t range in normal persons. In 1926 E. E. Osgoo showed that for normal men the figure should be the neighbourhood of 5,500,000 per c.mm.; same author, in collaboration with H. D. Haski has now investigated the blood of normal wom between the ages of 18 and 30, and again it is fou that the hallowed text-book statements are wide the truth. Using a carefully standardised techniq these workers find that the average red cell count healthy women between the ages stated is 4,800,0 per c.mm., 90 per cent. of their subjects giving readi between 4,300,000 and 5,300,000. As regards hæmoglobin percentage, Osgood showed in investigations upon the blood of males that average weight of hæmoglobin is actually 15·76 per cent., while the majority of methods in use in country and in America are based upon an assum 13·8 g. per cent. Curiously enough, the aver

[1] THE LANCET, 1926, ii., 1230.
[2] Arch. de Médecine Militaires, April, 1927, p. 332.
[3] THE LANCET, 1926, ii., 191.
[4] Osgood: Arch. Int. Med., 1926, xxxvii., 685.
[5] Osgood and Haskins: Arch. Int. Med., 1927, xxxix., 64

entage of hæmoglobin by weight in the blood of en as estimated by Osgood and Haskins approxi- es closely to the accepted standard, being 13·7 per . The majority of hæmoglobinometers in use in country give readings in percentage of normal , but according to the results obtained by Osgood Haskins this figure is the normal for females and for males. Hæmoglobin percentages obtained he Haldane, Tallquist, or Dare methods would, hese findings, require an addition of about 15 per . to bring them up to the normal male standard. stigation of the total volume of packed red in female blood showed the average bulk to be cm. per 100 c.cm. of blood as opposed to 45 c.cm. nales. Calculation of the volume coefficient h gives an index to the actual size of the individual cell and may be defined as the volume of red per 100 c.cm. calculated to a red cell count of),000 gives a coefficient for the female of 42·8 as sed to 41 for the male. This difference in the me coefficients of male and female red cells would to be only explicable on the assumption that the of the red cell in the female is greater than in male. This is an observation which appears to eluded previous workers and obviously demands ier investigation.

LOW BLOOD PRESSURE.

HILST hyperpiesia and its consequences are the ect of limitless investigation and inquiry, the site condition, in which the blood pressure is ually low, is not written about very frequently ; pt in occasional conditions, such as severe surgical k and Addison's disease, the symptom of hypo- ion has seldom been given careful consideration. accordingly of interest to receive the exhaustive ograph on the subject recently contributed to American contemporary, *Medicine*,[1] by Prof. d Friedlander, of Cincinnati University. His lusions do not suggest that any very important s have been lost sight of. One large insurance pany in the United States, on reviewing 3389 ns of all ages in whom the maximum systolic d pressure was below 100 mm., found that these ed exceptionally good insurance risks, their al mortality being only 35 per cent. of that cted, whereas the company's general mortality 80 per cent. of the expectancy. In almost all severe infective fevers, including typhoid, pneu- ia, influenza, diphtheria, and scarlet fever, a ressive fall of blood pressure has been observed ng the acute period of the disease, and in influenza fall often goes on during the convalescent period ; hypotension is nearly always an indication of cardial involvement, but loss of vasomotor and reduction in the volume of blood in the r are additional factors, especially in influenza. hypotension of Addison's disease naturally pies a prominent place in any discussion of this ; indeed, the relationship between adrenal rity and changes in the arterial tension appears e at once the chief clue and the principal source ontroversy in all blood pressure problems. The iant clinical observations of Thomas Addison, e without the help of sphygmomanometers, iocytometers, or any of the complex armamentarium nodern scientific workers, have not yet been wed by any satisfactory explanation of the otension which is, perhaps, the cardinal physical in this disease. Chronic inflammatory processes, cially those affecting the teeth, accessory nasal ses, tonsils, gall-bladder, and uterine adnexa, very often accompanied by low blood pressure, Prof. Friedlander is of opinion that the sign is of genuine diagnostic value. Reviewing the ts of tissue extracts in producing an artificial otension, it seems clear that histamine, which is idely distributed constituent of animal tissues, t the only extractive capable of producing a fall in blood pressure. Parathyroid extract and various hepatic extractives other than histamine and cholin are amongst the more important bodies recently investigated. Apart from the nitrite group there are few drugs having any useful hypotensive action, but cucurbocitrin, the active principle found in water-melon seeds, and glucose given intravenously, are amongst those which appear to be genuinely effective, and further research may show them to be very useful in this connexion.

[1] Medicine, May, 1927. Baltimore: Published by Williams and Williams.

DRIED EGGS AS FOOD.

THE peculiar physiological or rather pathogenic effects of dried egg-white observed by Miss M. A. Boas in the course of experiments[1] on rats at the Lister Institute show what very great care is needed in feeding experimental animals on diets which are more or less artificial in character. They also suggest the question whether dried eggs should in any case form a large item of diet, although it does not follow that what is unsuitable for rats is not good for man. Dried egg-white used as the principal source of protein for young rats leads to eczematous dermatitis, beginning at the corners of the mouth and afterwards spreading, loss of hair, spasticity of the limbs, a kangaroo-like posture, loss of weight, and death, followed rapidly by rigor. These symptoms seem to be produced by any dried egg-white and are not peculiar to the predominant Chinese article. Even when dried at ordinary temperature in vacuo egg-white produces this effect, so that neither temperature nor preservative is the cause. Egg-white denatured but not dried by heat is harmless. Both potato and arrowroot starch furnish some unknown substance which neutralises the effect, whilst cereal starches do not. This protective factor is associated with, but apparently differs from, the water-soluble vitamins—the antineuritic substance and Goldberger's anti-pellagra body. The previous growth of the young rat and the antenatal diet of the mother may have a considerable retarding effect on the setting up of the morbid condition described. The explanation of the results is yet to be found. These observations, like many others, raise the question of the safety of depending, as civilised people seem more and more inclined to do, upon dried, tinned, sterilised, and otherwise preserved foods. They at least indicate the wisdom of including in any diet a large proportion of food which has undergone the minimal amount of preparation consistent with cleanliness and digestibility.

[1] Biochemical Journal 1927, xxi., 712.

HOSPITAL COÖRDINATION.

DURING the last few weeks many converging events have focused attention upon the future of the voluntary hospitals and their relation to the municipal institutions. The subject has been discussed by the British Hospitals Association and the British Medical Association at Edinburgh on lines which suggest a general consciousness that the existing situation lacks permanence and that changes, not yet very clearly defined, in our hospital system are inevitable at no distant date. Prof. Hey Groves, in describing its shortcomings, has been particularly drastic. For years past he has declared it has been moribund and is being painfully kept alive by artificial expedients. Hospital buildings are out of date and badly placed, their equipment is necessarily incomplete, and their resources are insufficient to enable them to keep pace with the demands of the population—demands which are growing with embarrassing rapidity. The professor of surgery in Bristol University sees no way out of the financial difficulty short of State-aided insurance with a municipal and county rate to which the State would contribute an equal amount. This would involve Government control through a central hospital board, which would coördinate the entire hospital system of the country. In all this there seems to be some exaggeration of defects, a minimising of the patent advantages of voluntaryism, and an almost complete

ignoring of the amazing resiliency exhibited by the system since it began to recover from the shock of war.

These destructive criticisms, moreover, interesting and stimulating as they are, leave untouched the line of reform and coördination so regularly advocated in these columns to which particular attention was directed at Edinburgh during discussions on the future relationship of municipalities to the voluntary hospitals. On this subject there is a very large measure of agreement. In advocating the fusion of voluntary and rate-supported hospitals, Mr. H. L. Eason laid stress upon the fundamental factor of medical education. A teaching hospital must be able to admit every type of case, and fusion would facilitate rapid turnover and would enable the municipal hospitals to have a larger proportion of chronic cases. Many of those hospitals are admirably equipped and staffed; the best of them, indeed, range closely alongside the premier voluntary institutions. But they are isolated from the general hospital system both as regards medical teaching and the reception of patients. Their beds, too, are often standing idle while those of almost every voluntary hospital in the country are not only full, but besieged by waiting crowds. The wastefulness of such an arrangement is glaring, and the time has clearly come for its revision. Two hospital systems existing side by side, with no door of communication, but with a socio-economic barrier between them, are so anomalous that, in the new situation that has arisen since the war, it is impossible to defend it. It is fairly obvious, however, that it would be impossible to stop at the mere removal of barriers crying out for demolition. The process would leave gaps that could be filled only by a somewhat delicate process of repair. "Coördination" is a blessed word, but its virtues lie not in its mere repetition as a magical formula, but in a reasonable appreciation of its spirit and in its deft application in particular circumstances. Coördination between the voluntary and the municipal hospitals is a certainty of the not distant future, but when it comes about we must be prepared for a pitched battle between the advocates of Government control and tax and rate aid for the entire hospital system and those who are anxious to preserve all that is precious, human, and pitiful in voluntaryism. The voluntary hospitals are fast ceasing to be mere charities and are developing into highly important media of self-help, as witness the innumerable contributory schemes and other methods of supplementing charity by coöperation which, despite their vigour, are still in their infancy.

When these great questions definitely come up for settlement much will depend upon the attitude of the voluntary institutions. Speaking the other day to the British Hospitals Association as its President, Sir Arthur Stanley uttered a statesmanlike warning against aloofness from real reform. The hospitals, he said, must be prepared for "readjustment, correlation, development." That is not to say that they must necessarily become a mere department of the national administration. Linked together under some central control which would redistribute strength and prevent overlapping and duplication, and yet do its spiriting gently, the voluntary hospitals would have the satisfaction of knowing not only that none of their efforts was being wasted, but that many of them were being reinforced. Moreover, free intercommunication between the voluntary and the municipal institutions would distinctly ease the financial situation. It is assuredly not beyond the wit of man to readjust, correlate, and develop, to use Sir Arthur Stanley's crisp and useful phrase, without destroying the historic basis of our hospital system. That basis, which began with pure charity, is rapidly developing, as we have said, into self-help and coöperation. Both of those things are virtues of a highly practical character, and to wave them aside in favour of some symmetrical theory would be to flout some of the best instincts of mankind.

PROF. RUDOLPH MAGNUS.

NEUROLOGY owes much to Prof. Rudolph Mag whose death at Pontresina we have already recor He was only 53 years of age, but his fame long passed beyond the University of Utrecht, wher was appointed to the chair of pharmacology some before the war. His earlier work covered a wide f but his name will always be associated mainly an intensive study of posture carried out du the last 22 years of his life. His aim was to di the physiological functions of the eyes, labyri otoliths, neck-tissue, and lateral end-organs of body in so far as they contribute to the mainten of normal posture, and in this intricate researcl precision was remarkable. The attention whic gave to detail amounted to genius and has res in an important increase in our knowledge of function of structures that have long been fan anatomically. Starting with the reflexes of the s animal, Magnus and his collaborators went on to s the attitudinal and "righting" reactions of ani in which less and less of the brain had been destr Twenty years were devoted to research on the ph mena provided by the decerebrate animal (mid-l level), and at the time of his death further work in progress on those of the so-called thalamus an in which the cerebral cortex, pyramidal tracts, corpora striata are out of action. One of the re of all this investigation has been to show that equilibrium is upset the mechanism by which restored is purely reflex; the righting and tudinal reactions of animals are wholly involun and subcortical mechanisms furnish normal sta positions for each new cortical action. The ex ments leading to this conclusion were ably desc by Prof. Magnus in the Cameron Lectures[1] of and, as we pointed out at the time, it is permis to suppose from his results "that volition ma eventually driven to the highest transcortical level that a part at least of cortical activity may be s to be of an involuntary character."[2] To go fu than this is mere speculation, but Prof. Ma has appreciably narrowed the territory of vo as previously recognised. His untimely death a career which has included some of the finest n logical work of the present century.

Sir James Michelli is resigning the secretar of the Seamen's Hospital Society which he has for 40 years. When he took office the income Society averaged £12,000 per annum; it now ex £80,000, and six establishments are maintain the Society instead of one.

THE twenty-ninth annual report of the Metrop Asylums Board, which has just been issued, with the year ended March 31st, 1927. The m portion occupies 300 of the 420 pages and is di into four sections—infectious diseases, mental dis tuberculosis, sick children—each of which c obtained separately, price 1*s*. The whole rep obtainable for 5*s*. from the offices of the Victoria Embankment, London, E.C. 4.

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[1] THE LANCET, 1926, ii., 531 and 585.
[2] Ibid., p. 657.

CONDENSED MILK.—The Minister of Health is to make regulations amending the Public Health (Con Milk) Regulations, 1923, so far as they relate to the la of condensed milk. Copies of the draft regulations obtained under the description "Draft, dated Augu 1927, of the Public Health (Condensed Milk) Amer Regulations, 1927," from H.M. Stationery Office, Kin London, W.C. 2 (price 1*d*.). Any representations subject should be addressed to the Secretary to the M at an early date.

Modern Technique in Treatment.

Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXVI.

THE TREATMENT OF SINUSES.

I. General Considerations.[1]

"A sinus is not a disease but a symptom." Successful treatment therefore depends on the diagnosis and removal of the cause, and is not merely a question of the use of some special irrigation, or vaccine, or artificial sunlight, or ionisation, or the injection of some paste, or in fact any of the very numerous methods that are often more or less indiscriminately employed. All these methods have their place in the treatment, but they must only be used with relation to the cause in any particular case. To treat a surgical sinus with artificial sunlight may often be quite appropriate, but it is a gross violation of surgical principles to use a vaccine for the cure of a sinus over the jaw instead of removing the buried fragment of tooth which is so often the causative factor.

Most sinuses can be classified under one or other of the following heads :—

1. Foreign bodies derived from the outside.
2. Foreign bodies derived from the tissues themselves, such as dead bone, or teeth, or calculi.
3. Defective drainage of abscess cavities.
4. Communications with a secreting epithelium.
5. The persistence of some vestigial structure.
6. Tubercle or actinomycosis.
7. Malignant disease.

Sinuses are said to be *active* when the cause remains, and are spoken of as *residual* when the track persists, despite of the fact that the original causative factor has been effectively dealt with.

Sinuses due to Foreign Bodies.

We must now consider some of the varieties of sinus in detail, and first *those due to foreign bodies which have entered the tissues from without.* The commonest examples are associated with missiles, which everyone became so familiar during and since the war. Even at this late stage it is necessary to insist on the routine X ray examination of every wound in which there is the remotest possibility that a metallic foreign body may be the cause of a sinus. The discovery of such a foreign body is usually easy, but it may be found at some considerable distance from the orifice of the sinus which it is causing, and the X ray may have to include a large field. The removal of such a foreign body will cure a sinus due to its cause. Removal may be carried out via the old sinus, but it is often very much easier and quicker to cut directly down on to the foreign body by a shorter and more direct route. There are some cases in which the sinus persists even after the removal of the foreign body. This is not uncommonly due to a small portion of clothing which has been carried into the tissues at the same time as the metallic fragment, which has escaped removal. There are also many foreign bodies from without which do not show on X ray examination, and yet may be large and troublesome, such as thorns or pieces of glass. The history should be closely scrutinised, and exploration may have to be carried out for their detection and removal.

Another class of external bodies are those introduced in the carrying out of some surgical operation. In the days when silk was more commonly used for sutures and sutures, it was often the cause of troublesome sinuses which persisted until some offending suture was either extruded naturally or removed. In a case of persistent abdominal sinus I removed a piece of silk ligature used to secure the pedicle of an ovarian cyst seven years previously. Silver wire and catgut, and even heavily chromicised catgut, may likewise be offenders. Drainage-tubes are every now and again lost in the tissues, and have been known to be the cause of persistent sinuses resulting from empyema, appendix abscess, necrosis of the long bones, &c. Sometimes a rubber tube retained for too long in a wound may itself be the cause of an indolent sinus. Fragments of gauze or cotton-wool may also be overlooked, and in one striking case a troublesome sinus of three years' standing in connexion with the upper jaw proved to be due to a small piece of sponge which had been packed into a tooth socket and had been forgotten.

Foreign bodies derived from the tissues themselves are sufficiently numerous and important, and among these fragments of bone in the form of sequestra, and teeth or portions of teeth, supply the commonest examples. There is no end to the sinuses about the jaws which turn out to be due to diseased teeth or fragments of teeth left behind after extraction, roots driven into the substance of the jaw as the result of unskilful attempts at extraction, or roots which have been left behind, have healed over, and have given rise to sinuses even years afterwards. Sequestra are such well-known causes of sinuses that they are not likely to be overlooked, but it must be remembered that even a very small sequestrum will sometimes be the cause of a persistent sinus, and that the orifice of the latter may be at some considerable distance from the focus of diseased bone. Other foreign bodies, such as calculi, may be the cause of sinuses, and I have removed gall-stones which have been the offenders. In one notable case an enterolith from the appendix kept up a sinus for 40 years, the causation being proved by the cure which immediately followed its removal.

Defective Drainage of an Abscess Cavity.

Sinus may be due to the defective drainage of an abscess cavity, such as an empyema in the chest, or the similar condition in the antrum of Highmore. In the chest, the situation of the opening is only one of the factors that has to do with the persistent opening, but it may be the main one, as in those cases of empyema which have burst spontaneously somewhere in the neighbourhood of the nipple or have been deliberately opened too high up. The immediate requirements of the case are met, and the patient's condition improves, but the sinus persists because only the top of the collection of fluid has been tapped, and it requires an incision in a more dependent place to bring about proper drainage of the cavity and to hold out prospect of cure of the sinus.

Communications with a Secreting Epithelium.—Persistent Vestigial Structures.

Sinuses due to communications with a secreting epithelium include those most commonly found about the anus, which we speak of as "fistula." These persist because of their communication with the bowel. Sinuses due to vestigial structures are most frequently found in the middle line of the neck, where the thyroglossal fistula is a classical example, or in the side of the neck in the situation of the branchial clefts. They may also occur between the anus and the coccyx, where postanal dermoids are found. The clue to the exact nature of the latter type may be furnished by the appearance of hairs or even a tuft of hair which may project through the opening.

Sinuses due to Tubercle.

Then there are the sinuses in which tubercle is the cause. The opening on the surface may communicate with a deep-seated focus either in connexion with a tuberculous gland, as in the neck, with bones and joints, or occasionally with the peritoneal cavity, as in those troublesome sinuses about the umbilicus or the right iliac region where the primary disease is in the bowel. Sometimes the track itself is not actually tuberculous but is merely a communicating channel of granulation tissue between the tuberculous focus and the surface, but more usually the track is actually engrafted with tubercle, and it is these sinuses which furnish the majority of the residual sinuses which have been mentioned.

[1] The article by Prof. Grey Turner on the Treatment of Sinuses in Special Situations will appear in this series next week.

In the same situations actinomycosis may be the causative factor.

Malignant Disease.

Malignant disease is one of the rarest causes of sinus, but it must be borne in mind. In this connexion it is as well to mention that sinuses of long duration, perhaps usually associated with very deep-seated and chronic bone disease, may eventually themselves become engrafted with epithelioma, although this is a very rare event.

The Indications for Treatment.

A sinus should never be allowed to persist without an attempt at its diagnosis and cure. It is not only an annoyance, but a potential source of danger, because it may be a focus for continuous septic absorption and it is liable to outbursts of acute infection. Chronic absorption may lead to a whole train of evil symptoms, sometimes even culminating in lardaceous disease. Tetanus has been known to arise and malignant disease may certainly follow. For these reasons every sinus requires careful investigation :—

1. By ascertaining the history accurately and by critical consideration of all the circumstances.
2. By ordinary examination with the object of ascertaining its relation to surrounding parts.
3. By X ray examination, in some cases with the aid of opaque injections.
4. By cautious use of the probe.
5. By noting the effect of treatment.
6. By reconsideration from time to time.

From what has been said it is clear that the most important indication is to discover and remove the cause, and if this is done the great majority will soon heal.

G. GREY TURNER, M.S. Durh., F.R.C.S. Eng.,
Professor of Surgery in the University of Durham ;
Surgeon, Royal Infirmary, Newcastle-on-Tyne.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. (D) T. A. B. Corless is placed on Retd. List at own request.

Surg. Lt.-Comdr. A. W. Gunn to be Surg. Comdr.

Surg. Lt. A. H. Harkins to be Surg. Lt.-Comdr.

The following appointments are notified :—Surg. Comdr. : C. H. M. Gimlette to *President*, addl., for three months' post-graduate course. Surg. Lt.-Comdrs. : A. W. McRorie to *President*, addl., for three months' post-graduate course ; F. C. Hunot to *Yarmouth ;* and W. E. Heath to *Fisgard ;* L. S. Goss to *Suffolk ;* and J. C. Brown to *Vivid*, for *Rodney*. Surg. Lts. : N. A. Dickinson to *Hermes ;* and L. P. Spero to *Adamant*.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub-Lts. F. T. Doleman and A. R. Thomas to be Surg. Sub-Lts.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. J. H. R. Winder retires on ret. pay.

Capts. to be Majs. : T. Menzies, D. H. Murray, E. Underhill, R. A. Mansell, and J. T. Scrogie.

Lts. to be Capts. : C. R. Christian, C. W. Greenway, R. J. Rosie, J. Huston, and E. G. Dalziel.

ROYAL HOSPITAL, CHELSEA.

Physician and Surgeon : Maj. E. A. Strachan, vice Maj. E. T. Potts, C.M.G., D.S.O., who has vacated the appt.

REGULAR ARMY RESERVE OF OFFICERS.

Col. T. C. MacKenzie, late R.A.M.C., having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL ARMY.

Lt. A. H. Macklin to be Capt.

E. J. G. Glass (late Offr. Cadet, Edinburgh Univ. Contgt., Sen. Div., O.T.C.), F. Lishman, J. N. Russell, F. Heywood-Jones, and M. S. Scott to be Lts.

The King has conferred the Territorial Decoration upon Lt.-Col. Andrew Johnstone Brown and Majs. Henry Neville Burroughes and Ronald Ogier Ward.

ROYAL AIR FORCE.

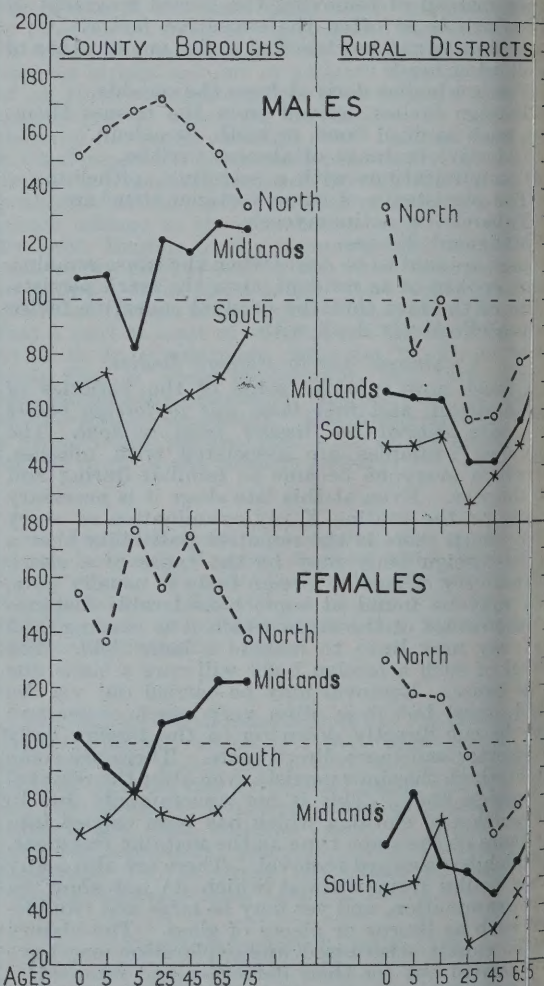
Squadron Leader F. C. Jobson relinquishes his commission on completion of service.

Special Articles.

THE GEOGRAPHY OF MORTALITY FR BRONCHITIS AND PNEUMONIA.

NEARLY one-seventh of deaths from all ca come under the two rubrics of bronchitis and p monia, and a study of the incidence of these dise which the Registrar-General's report[1] renders poss is therefore of great importance. Such a study l inevitably to the conclusion that a large par mortality from these diseases is avoidable. A of the teaching of Tables XLVI. and XLVII. in report can be seen graphically displayed in Fig and 2. These diagrams show for three division England the male and female death-rates for years 1921–25 from bronchitis and pneumonia res tively at each of seven age-periods, in proportio the mortality for the same ages in England Wales stated as 100.

FIG. 1.



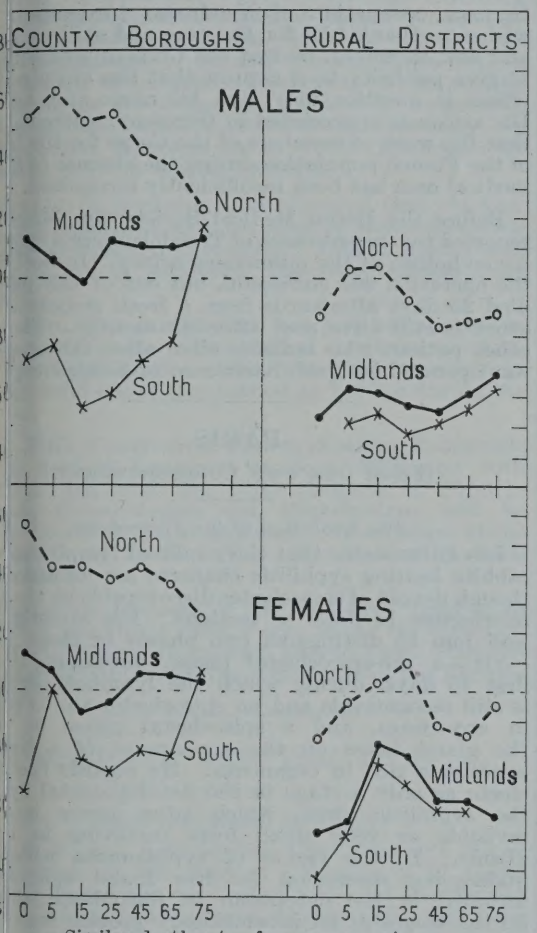
Death-rates from bronchitis showing topographical varia

County boroughs and rural districts in each of sections of England—north, midland, and sou are contrasted in each instance for males and fe separately. Wales has been omitted from the parison, but it may be stated broadly that it is surpassed in its unfavourable mortality by north of England. It will be seen that in co

[1] The Registrar-General's Statistical Review of Englan Wales for the year 1925. Text. H.M. Stationery Office.

ghs, both for males and females, the death-rom bronchitis is much higher in the north than e midlands, and higher in the midlands than south at most ages. The same excess is shown al districts in the north, though on an appreciably scale. Similar remarks apply to the mortality pneumonia, with differences in detail which e best studied in the diagrams.

FIG. 2.



Similar death-rates from pneumonia.

y should the population in the northern areas, particularly in urban districts, thus suffer sively? One naturally thinks of the severe tic conditions of the north, of its excessive ll and humidity, of its deficiency in sunshine, f its fogs. These might be assumed to apply both an and rural districts; but the diagrams show although rural, like urban, mortality from these es is excessive, the rural excess is at a much absolute level than the urban. Taking the s for males the relative death-rates at ages n county boroughs in the north and south ctively for bronchitis are as 152 : 84, and in districts in the north and south respectively are 3 : 47. At ages 25–45 the corresponding figures 72 : 60 and 56 : 26. Similar differences can be l in the figures for pneumonia. It is clear that te does not form an adequate explanation of differences between north and south, nor of ifferences in north and south between towns and ry districts. That climate does not form an nate explanation is further indicated, as pointed n the Registrar-General's report, by the figures h show that the infant diarrhœa rate of the north re than double that of the south, that of the nds being intermediate in regard to both hœa and respiratory diseases. Here are the figures for diarrhœa in the north and south respectively:—

		County boroughs.	Rural districts.
Relative death-rates from diarrhœa and enteritis, that of England being stated as 100	North	154	85
	South	63	32

Diarrhœa in large measure, given other equal conditions, is a measure of summer temperature. Yet the north suffers excessively from it. As stated in the Registrar-General's report, simultaneous excesses of 74 per cent. for mortality supposed to be promoted by cold and of over 100 per cent. for mortality known to be promoted by heat cannot both be explained on the score of climate. It is evident that conditions other than climate are not equal; and that in regard to diarrhœa, as in regard to bronchitis and pneumonia, evils exist to an extent which is not equalled in the midlands and still less in the south. What are these? Do industrial occupations explain the difference? If so, the excessive mortality from bronchitis and pneumonia ought to occur chiefly at the working ages of life; whereas the diagrams show that it is great at all ages, and in rural districts is greatest in childhood for bronchitis. That industrial occupations, although doubtless concerned, do not give the chief key to the situation is especially indicated by the differences found between the bronchitic mortality of children under 5 in north and south. In the north this is 152 : 133 for male children in county boroughs and in rural districts respectively; and 68 : 47 in corresponding parts in the south. Here evidently occupational evils are not primarily concerned.

It may be safely stated then that quite irrespective of differences in climate or in occupational conditions there is a terrible excess of bronchitis and pneumonia in northern districts, rural as well as urban, though especially in urban districts. That this difference is not due in the main to unfavourable climate is further shown by the fact that in summer these same northern districts, rural and urban, have an excessive diarrhœal death-rate, although the summer temperature in the north is much less favourable to epidemic diarrhœa than that in the south. There is needed more detailed local analysis both of northern, midland, and Welsh figures, by means of which it would be practicable to bring out possible important differences in the incidence of these diseases. Meanwhile it may be taken as almost axiomatic that all that is involved in the word "sanitation," and in the standard of housing and of life in general, are lower and less satisfactory in the north than in the rest of England; and this general conclusion should cause searchings of heart and serious efforts at generalised reform on the part of public health authorities throughout the crowded industrial and rural districts of the north.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Official Recognition of "Natural Medicine."

THE parliament of Thuringia has granted the sum of M.100,000 (£5000) as a first instalment towards the construction of a State clinic for natural medicine in Jena. This has led to a protest by the medical faculty of Jena University, in which it is shown that so-called natural medicine is not a special science, and that its methods—so far as they are valuable—are used by the medical profession. The faculty points out that it would be dangerous to patients of the clinic if these methods alone were employed for the treatment of disease, to the exclusion of others which long experience has shown to be useful. Exception is taken to the Government's action in adopting the plan without asking the opinion of the medical faculty of Jena or the medical chamber of Thuringia. The money spent on the new clinic would, it is thought, be more usefully devoted to improvement of the old

university clinics of Jena and to the construction of new houses for which there is urgent need.

Workmen's Insurance in Various Countries.

In the Journal of Industry and Statistics a report is published on workmen's insurance abroad. According to the writer, the longest established insurance is that of Germany where a sickness insurance Act was passed in 1883, an accident insurance Act in 1883, and an Act for insurance against old age and invalidity in 1911. In Germany 32 per cent. of the population are insured, in Great Britain 35 per cent., in Austria 25, in Norway 21, in Czechoslovakia 16, in Poland and Russia 6, in Jugoslavia 4. In Luxemburg, Rumania, Latvia, Japan, and Greece insurance covers only industrial workmen, leaving out other classes of the working population. Certain countries have only voluntary insurance against sickness, assistance being given by the State. These include Belgium, where 8 per cent. of the population are insured in this way, Denmark with 4 per cent., Finland with 18, France with 7, Sweden with 12, and Switzerland with 23. There is no State insurance of any kind in the United States of America.

Public Health in Russia.

The Society for the Study of Eastern Europe recently arranged a series of lectures by Russian savants in Berlin. Their leader was Prof. Semachko, Commissary of Health of the Union of Soviet Republics, and he gave an address on the Institute of Social Hygiene and its work. By the introduction of compulsory vaccination five years ago the amount of small-pox had, he said, been considerably reduced, whilst cholera and enteric had also become less common of late years. The general mortality had fallen from 27·3 per 1000 in 1913 to 23·7 in 1925. The number of births had not decreased, notwithstanding the liberal law on artificial abortion, and was almost the same in 1924 as in 1913. The annual increment of population had risen from 16·5 in 1903 to 21·5 in 1925.

Death of Prof. Fritsch.

The death has occurred, at the age of 90, of Prof. Gustav Fritsch, a pioneer in the physiology of the brain. As early as 1870 he discovered, with the late Prof. Hitzig, that the cerebral cortex could be excited by the faradic current, a fact upon which the localisation of the motor centres was based. His scientific interests were from the beginning very wide. Shortly after qualifying in 1863 he went for three years to South Africa on an ethnographical survey of which he published a description. Soon afterwards he went to Aden on an expedition to observe an eclipse, and thence travelled into upper Egypt upon anthropological and ethnographical pursuits. After his return he made studies on the anatomy of the diatoms and on electric fishes, and was appointed head of the department of biology and microscopy at the newly founded institute of physiology at Berlin University. His last work was on the comparative anatomy of the retina in the different human races, and was the result of travels which had led him to America, Eastern Asia, the Southern Seas, and Australia. In spite of great difficulties he managed to test the vision of many natives and to secure for microscopical examination specimens of the retinæ of those who had just died. He discovered that the acuity of vision of Europeans was on an average much lower than that of the natives of Java, India, and Mongolia, and that this fact was connected with the structure of the fovea centralis.

Health Week.

Last year's Health Week was so successful that it has been repeated. This time the propaganda was chiefly done in rural districts, and the campaign's main object was the destruction of vermin in its relation to stables, dwellings, and food. Each district formed a committee under the presidency of the district medical officer of health, the members including medical men, teachers, clergymen, and officials of sick-clubs. Pamphlets and picture post-cards distributed in schools, and lectures were deliv by the teachers. The clergy were asked to alluc Health Week in their sermons; in chemists' s the means of destroying vermin were exhibited, w broadcasting stations and the local press exerted influence for the success of the campaign.

A well-known French scientific man is tryin ascertain the name of an officer of the German A Medical Corps who attended his parents during German occupation of Vendresse (Ardennes). wishes to thank him for the care and skill exerc and has, therefore, invited the German medical to give publicity to a request that the army me officer in question may give his name and add His action is appreciated in Germany, where it is that the work of members of the Corps for the be of the French population during the absence of Fr medical men has been insufficiently recognised.

Before the Berlin Medical Society Dr. Meyer reported two recent cases of Trendelenburg's oper for embolism of the pulmonary artery. In both the operation was successful, but one of the pat died 25 days afterwards from a fresh embolus. other is still alive now after six months. The other patient who remains alive after the oper was operated by Prof. Kirschner, of Königsberg.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Evolution of the Spirochæte.

LEVADITI states that the popliteal lymph glan rabbits bearing syphilitic chancres are infective though devoid of spirochætes discoverable by the microscope in films or sections. His investiga lead him to distinguish two phases in these g —viz., a pre-spirochætal phase, developing in first 45 days, during which the lymphoid stru is still recognisable and no spirochætes are to be in any form, and a spirochætal phase in v the gland takes on the appearance of a pri syphiloma rich in organisms. He regards the s chæte as only a stage in the developmental cy the syphilitic virus, which later passes into invisible or very small form occurring in ly glands. In the region of syphilomata which undergoing resorption he has found spiroch included in the cytoplasm of fibroblasts, sh all the stages of an involutionary process tendi the formation of almost invisible granules. conception of changing form is invoked to ex (1) latent syphilitic infection with the presence virus in certain tissues not containing spiroch (2) cases of general paralysis of the insane or occurring without demonstrable spirochætes in nervous system; and (3) relapses coming on in of treatment, the resting forms being, he th more refractory to chemotherapeutic agents that spirochætal vegetative forms.

Yellow Fever and Bismuth.

The action of bismuth upon *Leptospira icte* (regarded by Noguchi and others as the infecting in yellow fever) has recently been studied by Sa Hosaya, and Stephanopoulo. They find that t bismuthate of sodium has a curative and proph action in guinea-pigs infected by the spirochæte this seems to be identical with the action of the compound on *Spirochæta icterohæmorrhagiæ*. research has shown that there is a close an between the two organisms, and perhaps these in gations may lead to yellow fever being treated derivatives of bismuth.

Application of Ultra-violet Rays.

The local use of ultra-violet rays is often hin by the difficulty of bringing the end of the appli which consists of a rod of rigid quartz, into

on with the lesion. Dejust has devised a ication in which the rod consists of segments in touch with one another, the whole forming in which can be bent at will. Investigation of ew device at the Optical Institute shows that e and ultra-violet rays pass along the chain, is claimed that it will allow irradiation of regions e body which have hitherto been inaccessible.

Leprosy in French Guiana.

ernadie reports 300 cases of leprosy at Cayenne, e population is about 12,000. Among the 0 inhabitants of French Guiana there are, he 800 or 900 lepers. Contagion occurs mainly ntact in the home, at schools, or in prisons. nged and intimate contact is necessary for ion, and it takes six or seven years for the e to develop among convicts.

razès, of Bordeaux, has observed that chicken-like small-pox and vaccinia, is sometimes com-ed by epididymo-orchitis. This is hardly sur-g if, as is supposed, the three diseases are d.

term "verdunisation" has just been coined in e to designate the method of sterilising drinking by hypochlorite. The name has its origin in ccessful use of the method at Verdun during the ar.

Fifth Congress of French-speaking Pediatrists e held at Lausanne on Sept. 29th and 30th Oct. 1st, and the Fifth Congress of French-ing Gynæcologists and Obstetricians will be t Lyons on the same dates. Information about tter may be had from Mr. Voron, 12, Quai , Lyon.

ourse on Diseases of the Digestive Tract is to ld at the Hôtel Dieu, Paris, under the direction f. M. Villaret, from Sept. 12th to 23rd. Particu-e obtainable from the secretariat of the Faculty dicine.

MEDICINE AND THE LAW.

Death Accelerated by Ether.

an inquest held at the City Coroner's Court ly 29th on the body of a woman of 27 years, ied during the removal of a lobe of the thyroid it was stated that gas, oxygen and ether were t given by Boyle's apparatus, chloroform being tuted when ether clonus developed. An ion of hyoscine had been given on the previous The anæsthetist giving evidence said that of wo brands of ether in use at the hospital were certified by the manufacturers to be and as an extra precaution both had been or analysis to the Medical Research Council, confirmed the purity with the exception "faint trace of deleterious chemical material" of them. The woman, it seems, had developed rous symptoms a year previously when under nfluence of ether for the similar removal thyroid lobe. Sir Bernard Spilsbury reported death was due to fatty degeneration of heart e (verified microscopically) consequent upon thalmic goitre and accelerated by ether given anæsthetic. The anæsthetist and the house n agreed with him as to the cause of death. oroner, in summing up, remarked that this was rst time in which a suggestion made in his l report for 1926 had been taken—namely, all anæsthetic ether should be analysed and ed as pure before use and kept after delivery t-proof amber-coloured bottles. This had been in the present case. A verdict of death from venture, the ether having been carefully and lly administered for a necessary operation, was led.

The Meaning of "Drunk."

While medico-legal experts continue to examine the tests of drunkenness, magistrates and juries from time to time apply some criterion of their own and reach decisions unassisted by any definition. Section 40 of the Criminal Justice Act of 1925 made it an offence to be "drunk while in charge on any highway or other public place of any mechanically propelled vehicle." At the recent Quarter Sessions for the county of Worcestershire, when a charge of this nature was being investigated, the chairman seems to have told the jury that, if a man had taken alcohol and was thereby rendered unfit to drive a motor-car, he was drunk "for the purposes of the present case." After this summing-up the jury evolved the following verdict: "Guilty of being incapable of driving a motor-car brought about by alcohol, but he was not drunk; he was not drunk to the extent which we should call a drunken man." The chairman took this to be a verdict of "Guilty," and proceeded to sentence the accused to one month's imprisonment in the second division. The Court of Criminal Appeal, however, has quashed the conviction. No amount of argument or ingenuity, said the Lord Chief Justice, was capable of getting rid of the fact that the jury said the man was not drunk. Drunkenness was a necessary ingredient of the offence; the verdict meant that that ingredient was absent. The chairman at Quarter Sessions had suggested that the word "drunk" should be defined in a particular way; the suggestion might deserve the attention of Parliament, but meanwhile this conviction could not stand. No definition or interpretation from the bench could turn "not drunk" into "drunk." Not long ago Mr. Justice McCardie was remarking that persons were certified insane without any definition of insanity. Evidently the law is content to rely upon the common meaning of words intuitively used and applied by jurymen. Thus the question "Was the accused drunk?" can be sufficiently answered "He was not drunk, not to the extent which we should call a drunken man."

Exorcising Evil Spirits.

The Allahabad correspondent of the *Times* reports an unusual defence to an accusation of murder. The accused, after having suffered for three months from dysentery, had consulted an exorciser of evil spirits, who assured him that his illness was due to a spell cast over him by a man named Hubba, who was under the influence of evil spirits. The accused thereupon killed Hubba with an iron-shod staff. This form of self-defence not being recognised by the criminal law, the accused was found guilty. The sessions judge is reported to have expressed reluctance to inflict the death penalty as the accused was virtually mad to think he could expel the evil spirits from the dead man by striking him with his staff. A sentence of transportation for life was imposed instead. Elements of demonology and witchcraft in criminal proceedings are by no means confined to India. A few years ago a court of appeal in East Africa quashed the conviction of a man accused of injuring his neighbour by putting upon him the evil eye. And even more recently a bench of magistrates in Devonshire was asked to accept a similar story.

CORRIGENDUM.—In the discussion on cerebellar function at the meeting in London of British and American neurologists (THE LANCET, August 6th, p. 302) we regret that Dr. F. M. R. Walshe's remarks are incorrectly reported. What he did say was that cerebellar ataxy was a phenomenon of voluntary movement, and was not present in the reflex movements of the thalamus animal without a cerebellum, and that Holmes had shown that the cerebellum had *no* sensory functions.

OLDHAM ROYAL INFIRMARY.—The Nook, Greenfield, has been opened as an auxiliary to the Oldham Royal Infirmary. Situated at the foot of Alphin Pike, one of the highest peaks of the Pennines, and splendidly equipped, the new hospital has been established by the generosity of the late Mr. J. L. Hargreaves.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some 1926 statistics for five county boroughs and one borough :—

Name of district and mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Diarrhœa under 2 years	Infant mortality.	Maternal mort. from childbirth.
West Ham .. (315,900)	21·2	10·7	1·14	1·24	2·2	1·4	13·9	62	1·9
Blackburn .. (124,400)	14·0	12·9	0·93	1·33	2·8	1·6	5·2	89	8·0
Northampton.. (93,530)	14·0	11·4	1·11	1·27	1·9	1·4	3·8	55	6·9
Lincoln .. .. (65,760)	16·5	12·3	0·97	1·41	2·4	1·5	4·6	79	8·2
Eastbourne .. (56,060)	12·9	10·7	0·87	1·87	1·3	2·0	2·7	43	8·2
Colchester .. (44,780)	16·1	10·6	0·91	1·42	1·5	1·5	6·2	64	5·0

West Ham.

Dr. F. Garland Collins reports that in September a whole-time assistant was appointed mainly for maternity and child welfare work. An antenatal clinic has been started at the Silvertown centre and a new centre has been opened in West Ham-lane, where both antenatal and postnatal clinics are in operation. The work of the health visitors has been reorganised and an arrangement made with the Plaistow maternity charity to prevent overlapping and to promote coördination. Home helps are employed by the council, and work under the direct supervision of the health visitors. A list of approved women is kept at the town hall, and each home help is required to give prompt notice when she has undertaken a case. During 1926 there were 1453 applications for home helps and 1261 of these were granted. During the last four years about 100 tons per annum of dried milk has been supplied at cost price for the benefit of nursing and expectant mothers and children under 3. The milk is received in hermetically sealed canisters and packed daily in cartons, in order to make sure that it is in good condition. The Plaistow isolation hospital has been made available for cases of puerperal fever, but it is found that most of the cases are sent into voluntary institutions. So far the existing nursing associations have provided the nursing required, and it has not been necessary to appoint a municipal nurse. A panel of three consultants has been formed so that the notifying practitioner may have a choice of specialist when a second opinion is desired. A sanatorium for children suffering from pulmonary tuberculosis, with accommodation for 40, is now being built on the council's site at Langdon Hills. This will meet a long-felt want.

There is much flagrant overcrowding. No houses were built with State assistance during the year, but the council are at present erecting blocks of flats, four storeys high, capable of accommodating 152 families. It not infrequently happens, says Dr. Collins, that a tenant renting three rooms from a landlord will sublet two of them to two separate families. If there is only one w.c. much bitter feeling arises between the tenants owing to the ground floor kitchen being converted into a thoroughfare to the backyard.

During Health Week about 35,000 persons visited the exhibitions. Dr. Collins emphasises the importance of selecting lecturers who know something of the neighbourhood, and will thus avoid putting forward impracticable suggestions. He also stresses h danger of these exhibitions being exploited by r firms. The babel which ensues often tends to mini the true purpose of the exhibition. He suggest interval of more than one year between health we the best form of health propaganda, he consider steady persistent teaching in the schools and chur and through the press and in the homes and ha of the people. The residential open-air school 80 boys established at Fyfield has been at work two years without a single case of infectious dis or any serious illness ; it also kept free from epidemic of influenza which affected the bor towards the end of the year. Seven nurses at isolation hospital contracted scarlet fever and diphtheria. All new probationers are now tested if necessary, immunised against these diseases. results of Dick tests on scarlet fever cases wer follows : 66 of 71 patients tested in the first five of the illness were positive ; 48 of 87 tested on seventh day were positive ; 57 of 160 tested in second week were positive ; and 57 were retest weekly intervals. All had become negative by end of the sixth week except seven, who were pos on discharge from hospital.

Blackburn.

Dr. Oscar M. Holden tells us that Blackbur 1926 had the highest total rainfall of any large t in England, nearly 41 inches. The hours of b sunshine totalled 1114, which might be compared i the 1211¼ registered at Lytham. The chief indu is cotton-weaving and its subsidiary bran Normally 748 of every 1000 women and 280 of e 1000 men are textile workers, but the year has one of depressed industrial conditions with r unemployment. The respiratory group of dis bulks largely in the death returns, and Dr. Ho suggests that unfavourable climatic conditions, cou with a dirty atmosphere, are the predominant ca He suggests a connexion between the decline in t diseases and the cleaner atmosphere during the strike of last year. Respiratory diseases are mark more prevalent among the cotton operatives. Spin and unclassified operatives show the most unfa able figures. Winders and warpers are better pl Female weavers apparently come off better than r

About 50 per cent. of the babies born are exem from vaccination. A small outbreak of small-p a mild type gave rise to eight cases in the Qu Park Institution. It was attributed to an undet case in a vagrant. A small open-air school, prov beds for 20 delicate children, is carried on in o the original scarlet fever pavilions at the ope hospital. Ultra-violet light apparatus is also pro at the hospital for the benefit of the maternity child welfare, tuberculosis, and school departm Dr. Holden thinks that the practice of allowing visitors twice a week to see the diphtheria and sc fever patients is a mistake. Apart from the win cleaning business, managed by the Charity Orga tion Society for ex-sanatorium cases, there i system of after-care for consumptives, and Dr. H thinks such a system is greatly needed. The arr ments at the hospital for tuberculous patients considerable improvement. There is no dinin or recreation-room, all the meals being taken i ward. The records show that of the patients tr at the corporation hospital and discharged 1913, 13·4 per cent. are at full work with no symp and 5·2 per cent. at full work but with diffic The corresponding figures for the patients sen treatment to Meathop Sanatorium are 19·0 per and 6·8 per cent. respectively.

The antenatal clinic has two sessions in the and was attended by 480 prospective mothers. Holden complains that although 80 per cent. o confinements are attended by midwives the nu of cases sent by them to the clinic was only 59. municipal maternity home has accommodatio 20 cases, and the medical officer of health is empo to remit the minimum fee of £1 11*s.* 6*d.* per we

es of proved necessity. The patients admitted nbered 212, being 39 fewer than last year. Each nber of the staff is a fully-trained nurse as well a qualified midwife. Dr. Holden would have liked see more use made of the beds, and it is surprising t hospital treatment is not sought more often, ng that in 1926 27·3 per cent. of the confinements rivate houses took place in the kitchen or living-m. The number of stillbirths in 1926 was 4·8 per t. of the number of live births. The neonatal tality was 45·8 per 1000. There were 19 cases of thalmia neonatorum and one baby totally blinded. ensus taken in March, 1926, did not reveal any rtage of houses, which is not surprising when it is what a small difference there has been between birth-rate and death-rate in Blackburn of late rs. Individual cases of overcrowding met with e due either to bad distribution of the family in rooms or to subletting.

Northampton.

r. Stephen Rowland, formerly tuberculosis officer, took up his duties as medical officer of health in ember after the death of Dr. J. D. McCrindle. terial examination of the town's water as a rule ealed a high degree of purity, but occasionally this ndard was not maintained. The Monarch-road which was a source of complaint in 1925, caused her complaints in 1926 owing to the invasion of hbouring houses by crickets bred on the tip. tip is now disused and a comprehensive scheme n preparation for the collection and disposal of se refuse by modern appliances. Five samples of k taken from one farm were reported by the lyst to contain added water varying from 7 per cent. 9·3 per cent. The farmer successfully prosecuted ervant for adding the water and the summons nst himself was withdrawn. In the case of a ple alleged to contain 7 per cent. of added water magistrates were satisfied that the milk was sold t came from the cow.

sudden outbreak of scarlet fever occurred in the inning of November after a period of almost plete freedom from this disease. It was found t nine of the first patients had their milk from e retailers, but that these three obtained the milk n one wholesaler, who in his turn obtained it from rm outside the borough. A milker was found at farm who had been away ill for 12 days in the nd half of October. He exhibited, however, no s of scarlet fever after repeated examinations, his medical attendant had seen no signs or ptoms of scarlet fever during his illness. He was luded from work and the milk was pasteurised. hin three days of the pasteurisation there was a den drop in the notifications. There were about cases in the borough and neighbourhood, which e evidently due to the infected milk; but, as often pens in scarlet-fever-milk epidemics, it was ossible to show how the milk had become infected.

Lincoln.

r. H. Gordon Smith thinks the existing unemploy-t can hardly fail to affect the health of the mmunity. In dealing with the condition of the dren attending the centre he points out that 80 2·9 per cent.) suffered from marked rickets, while suffered from respiratory complaints, 148 from tro-intestinal disorders, and 82 from debility. out of 838 infants were bottle-fed at the time of first visit of the health visitor, apparently because mothers often were not in a fit state to nurse them. ny men have been unemployed for years, others working part time and the weekly wage is often than £2. In the family dietary white bread is minent, and potatoes, margarine, sugar, and tea are l to the fore. Meat is not a big item, and milk y average a pint per day for everybody. The baby, therefore, "will probably receive at home ng starchy food, just the sort to give it rickets." milk and other foods supplied by the maternity child welfare committee prevents things from g worse than they are. Of the 86 infant deaths 27 occurred in the first week and 46 in the first four weeks (a neonatal mortality of 42). Of the eight midwives three are municipal. The city maternity home provided for 260 confinements in the home and for 428 through the district service, the total births during the year being 1089. Sixteen antenatal cases and two postnatal cases were also admitted to the home. Thirty-two babies born in the home were not entirely breast-fed while in the institution; nine because the mother was returning to work, two because the milk was unsuitable, and 12 because there was insufficient secretion of milk. Of the 17 stillbirths in the home two were due to breech delivery and three to placenta prævia. The attendance at all the centres and clinics is increasing, and more centres and more sessions are needed in order to do justice to the work. Dr. Smith complains of the pollution of the rivers by houseboats and by lazy people throwing in refuse, making the water impossible for bathing purposes. The veterinary surgeon began his inspection of the milch cows on Nov. 1st, and in two months found two tuberculous udders among 90 cows.

A block of ten cubicles is to be provided at the isolation hospital, and will greatly increase its efficiency for dealing with a larger variety of diseases and with mixed infections. There were 17 cases of encephalitis lethargica during the year with five deaths, and eight cases of anterior poliomyelitis with two deaths.

Eastbourne.

Dr. W. G. Willoughby tells us that the infant mortality-rate was the lowest of any of the large towns of the country with the exception of some London suburbs, and that the hours of bright sunshine (1659·1) were the eighth highest recorded for the United Kingdom. The most welcome feature of the year was a larger addition to the housing accommodation. There are still a number of families lacking proper accommodation—the number is estimated at 472—but at the end of 1926 there were 254 houses in course of construction or planned, leaving a deficiency of 218. A house-to-house inquiry now in progress will verify the last-named figures. The army huts, which were occupied in May, 1919, are being gradually closed. Originally there were 188 tenements, but at the close of 1926 only 70 were occupied. The maternity home dealt with more cases than in any previous year. There were 189 confinements and 191 children born, of whom four died and eight were stillborn. There were two maternal deaths; one patient was admitted moribund from puerperal eclampsia and the other died of peritonitis after Cæsarean section. Five of the infants were not entirely breast-fed, one owing to insufficient milk and another owing to blood in the milk secreted. In one case the mother had chronic nephritis, in another phthisis, and the fifth infant was going to a foster-mother. The antenatal clinic at the home was attended by 198 expectant mothers, and the other antenatal clinic by 17 (total 215, the births for the year being 727). The six deaths from childbirth were due to puerperal fever, eclampsia, perinephric abscess, peritonitis after operation, and embolism (2). The one day-nursery in the borough was permanently closed in March, 1926. The only patient with verified encephalitis lethargica died; the only patient with acute poliomyelitis, an infant of 39 days, recovered.

Colchester.

Dr. W. F. Corfield says that an unsuccessful endeavour has been made to secure accommodation for maternity cases by taking a building from the guardians, to which separate access could have been made. Negotiations are now in progress to obtain this accommodation through the District Nursing Association. An arrangement has been made for infants suffering from a crippling defect to be attended by the specialist at the orthopædic clinic of the education committee. During the year four cases of rickets, four of congenital deformities, and one of paralysis were so treated. The schemes for the conversion of privies and pail-closets, for the provision of a water-supply for hand-flushed closets, and for the

substitution of sanitary bins for ash-pits continue to make progress. 266 houses were erected with State assistance, 98 being municipal. The housing position is getting a little easier, and notices of houses to let are beginning to appear. For the last three years the nurses at the isolation hospital have been immunised against diphtheria and there have been no cases of the disease among them. During the year the patients and staff of the Royal Eastern Counties Institution for the Mentally Defective were immunised. The "positive" patients dealt with numbered 248 out of 1037, and the "positive" members of the staff numbered 47. No bad arms followed the tests, and only three persons had a moderately severe reaction. Dr. Corfield complains that infectious cases received into the Essex County hospital from outside districts and notified from there are counted as Colchester cases. All of the five cases of encephalitis lethargica and 11 of the 58 notifications of pneumonia were of this description.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Name of district.	No. on roll.	Average elementary school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.†
Edmonton..	13,462	—*	3,567	15,011	22·3
Norfolk C.C.	44,615	—*	14,225	12,052	14·67
Colchester..	5,872	5,201	1,852	2,741	21·0

* Not given. † Excluding dental defects and uncleanliness.

Edmonton.

Dr. H. W. Harding describes the increase in facilities for treatment at Edmonton during 1926 and wonders if a time will come when there will be nothing fresh to chronicle. Later in the report he indicates that future preventive and curative measures will be directed towards the pre-school child. The new orthopædic clinic was opened in March and the massage and remedial clinic in April. Treatment of otorrhœa by ionisation is now employed and a class for stammerers has been started. Attention is called to the need for drying-rooms for wet boots and clothes and for the supply of slippers; the lack of them causes much invalidity among school-children. In spite of the trade depression of 1926 the condition of the children compared favourably with that of the previous year. Although there is no special school for cripples, the exceptional children are well provided for; a special class is held for partially blind and myopic; the deaf and dumb are sent by tram to a special school at Tottenham, and the feeble-minded attend the special school under the joint committee of Enfield and Edmonton. Dr. Harding argues that special day schools for mentally defective children should be abolished and special classes should be started in the elementary schools for dull and backward, borderline, and feeble-minded children. Much can be said for the establishment of classes for the dull and backward in the ordinary schools, but mental defectives often become the butt of their normal fellows, and recognising their inferiority they sometimes react by antisocial behaviour, and many children who show early antisocial signs will develop into self-helping amenable citizens when put to work which they can do and which interests them. To exclude these children from school, notifying them to the authority under the Mental Deficiency Act, is merely to shift responsibility often to the detriment of the child since institutional accommodation is quite inadequate.

Norfolk.

Coördination of the various health activities is now well established, and during the year many alterations of, and additions to, the schools have been effected. The difficulty of providing efficient trea ment in a large scattered area is well met in Norfo by six clinics in the larger villages, their work bei supplemented by the issue of vouchers for attendan by approved practitioners and consultants and l arrangements with some of the local hospital Cases requiring to be nursed are attended by th local nurse and after-care is given by voluntar workers. Motor vans are used as mobile dent clinics. Physical training is now part of the routi in all schools, and it is reported that all children tak part in the organised games and exercises. Th orthopædic scheme is now maturing, and Mr. M. V Bulman has been appointed part-time orthopæd surgeon. The close coöperation existing between th school medical service and practitioners in Norfo is shown by the record of 49 cases of parenchymato goitre treated by thyroid medication under the joi supervision of the school medical officer and loc practitioners. This is excellent, for success preventive and curative measures depends on th interest and active assistance of all medical me Dr. J. T. C. Nash, the school medical officer, associat the decrease in the mortality from tuberculosis wi the rising standard of national nutrition, and advocat the giving of milk to selected under-nourished scho children.

Colchester.

Dr. W. F. Corfield reports that although the are no blind children, there are 15 partially blin for whom there is a special class. Educable ment defectives are adequately provided for in a day scho and in a residential school forming part of the Roy Eastern Counties Institution. There are 31 ineducal children, of whom 11 are in the Royal Eastern Counti Institution, whilst the rest live at home. Dr. Corfie deplores the lack of accommodation for them; many cases it means, he says, that one of the parer is tied to the house and sometimes younger childr are scared or imitate the bad habits of the defecti The occupation centre is often a partial solution the difficulty of dealing with imbeciles. On the futu of the ex-pupils of the special school for men defectives a candid—almost a pessimistic—report given, showing that only 17 out of 61 are at wo The figures are thought to suggest that the standa of intelligence for admission to the school is on t low side. There is no open-air school in the borou nor a school for cripples, of whom 85 are mention but the list includes defects such as cleft-palate a facial paralysis. The report of the organiser physical training is included in the annual repo and we should like to see this generally done.

MENTAL HOSPITAL REPORTS.

THE *Cheshire County Hospital* at Macclesfield h 1311 patients on its books at the end of last ye 21 in excess of the normal accommodation, so t the question of providing more room has already beco acute. The shortage is on the male side. Of the 2 admissions during the year, 101 were classed as ho less. Nevertheless, there was a recovery-rate 28·1 per cent., well above the average for the previ quarter century, and the death-rate was also one the lowest on record—6·1 per cent. Post-mort examinations were made on nearly 90 per cent. the fatal cases. Four of the deaths were due typhoid fever, which attacked 32 patients. It aro apparently, through the infection of a nurse by old typhoid carrier, whose habits were very dir Water from the villa in which the nurse was lying was drunk by patients on the cricket field, and infection was spread further by old alumini utensils which had got too battered to be readily k clean. The water-supply was, of course, investiga thoroughly, and a defective tank was found and right. Further alterations are desirable, the super tendent thinks, to put the whole supply abo suspicion. Otherwise the general health was go A "Vitaglass" hammock has been erected a

hers are to be supplied; many patients have been eated by ultra-violet rays. Some nurses volunteered r an experiment on the part played by cool air in ght therapy. Those who had exposure to light gained weight, and there was an increase in blood pressure d in the leucocyte count and colour-index. Those o had cool air treatment only did not show these anges; indeed, the leucocytes were diminished, ile the red cells increased. Both sets, however, perienced tonic effects, increase of appetite and ep, and a slight increase in basal metabolism. nall rooms are to be set apart as clinical rooms; b wards and open-door wards are in practice, and ny patients have full parole or parole within the unds. Out of eight cases of general paralysis ated with malaria, four were subsequently scharged and continue well. Two others proved considerably. Hyoscine treatment for post-cephalitic cases is the subject of a special note; e results were not very gratifying. Other research rk carried on includes an investigation into the ychological origin of schizophrenia, manic-depressive ychosis, and paranoia; a great deal of routine d blood culture work has been done in the laboratory. In the occupation department 64 women were ght handicrafts and 16 men were employed in sh-making, in upholstery, and in boot-repairing. elve nurses and three attendants obtained their loma and 26 more passed the preliminary examination of the Medico-Psychological Association. This ngs the total of certificated female nurses up to per cent., a figure which the superintendent lieves to be a record. A nurses' lecture-room has n equipped with models, lantern, and epidiascope. is gratifying to learn that the standard of probaners continues to improve. New tennis and lminton courts have been made.

The *County and City of Worcester Mental Hospital* Powick houses 1129 patients and has about 130 ancies. The recovery-rate for the year was 21 per cent., and the death-rate 6·4 per cent., h an autopsy percentage of 56·2. The general lth was good, except for three cases of enteric, origin of which was not traced. Plans have been proved for the erection of a verandah for male erculous patients; this will be a great advantage, at the present these men have to be nursed in the rmary ward. A dentist has been appointed to t the hospital fortnightly, and a small laboratory been fitted up. The lack of electric current makes impossible to employ certain modern aids to itutional work—a cinematograph, kitchen devices, l so on. The farm showed a profit last year of rly £700.

The *Middlesbrough Borough Mental Hospital* houses patients, an increase of 24. The recovery-rate 39·6 per cent. and the death-rate 8·7 per cent. ty-six per cent. of the patients were kept usefully ployed, and day or week-end leave and parole e granted wherever possible. The general health 926 was good. There were only half a dozen cases tuberculosis. Operations for hernia and pyloric cture were performed by the visiting surgeons. Visiting Commissioner, remarking that "there manifest desire here to progress on modern lines," es the excellent arrangements for electrical and ght" treatment, and urges provision for separate tment of recent and presumably recoverable es, and of out-patient treatment. He comments the fact that 77 per cent. of the direct admissions e from the Poor-law institution instead of straight n their homes, suggesting that this means of ification is too often resorted to. Seventeen male ndants and two nurses are certificated and ave passed their preliminary examination.

MENTAL DEFECTIVES.

The *Royal Eastern Counties Institution* for the tally defective at Colchester issues its sixty-eighth ual report for 1926, illustrated by excellent photographs of the buildings, games, and theatrical groups. The accommodation for 1120 patients is nearly all occupied, and there is urgent need for extension. Plans have been approved for some enlargement, but progress is slow. The general health and nutrition was good and there were only four cases of tuberculosis. Day service and living-in service have been continued, the chief development during the year was the increasing use of foster-mothers for quiet, well-behaved cases. The children go out on long leave of absence; this is preferable to putting them out under guardianship, because if anything happens, either to patient or foster-mother, the former can be brought back to the institution at a moment's notice. The medical superintendent finds from experience that, for the great majority of defectives, life in an institution is happier and more successful than any other scheme. Daily service is better, too, than boarding-out. Once a beginning of liberty is made, the defective generally thinks all restrictions are gone, and parents or employers will not enforce the terms of licence. The superintendent confesses to a considerable degree of pessimism about the possibility of getting the higher-grade cases back into the world. The only high-grade cases that ever come into an institution are those which have failed many times to adapt to an outside environment, and will fail again. The only class he sends out without misgiving is the quiet, well-behaved medium grade who is mentally a child and content to live for always as a child, under a good foster-mother. The school girl guide company had a fortnight's summer camp at Langham Hall and have taken 133 second-class and proficiency badges. The scout troop came out fifth in the ambulance competition for Colchester scouts. The patients make every article of clothing, every bit of furniture, every brush, mat, or basket needed by the institution, as well as selling products outside. More orders would be welcomed, but it is gratifying to learn that the coal strike did not produce the drop in income that might have been anticipated. As diphtheria had given a good deal of trouble for some years previously, the Schick test was tried on all those whose guardians gave consent. All the positive cases were immunised and there has been no more diphtheria. There were no mishaps among all the 1084 persons dealt with. There was a mild epidemic of influenza during the year and two patients died, but the tuberculosis death-rate was only 0·81 per cent. Epileptics were treated with luminal; the conclusion was that it helped to modify the attacks while not curing the patient.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 30TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 185 (last week 195); scarlet fever, 1623; diphtheria, 801; enteric fever, 78; pneumonia, 562; puerperal fever, 45; puerperal pyrexia, 97; cerebro-spinal fever, 7; acute poliomyelitis, 20; acute polio-encephalitis, 1; encephalitis lethargica, 23; dysentery, 3; ophthalmia neonatorum, 93. There was no case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 1 (0) from enteric fever, 25 (2) from measles, 9 (1) from scarlet fever, 12 (1) from whooping-cough, 21 (4) from diphtheria, 68 (8) from diarrhœa and enteritis under two years, and 15 (2) from influenza. The figures in parentheses are those for London itself.

Registration of Stillbirths.—Under the Birth and Death Registration Act, 1926, which came into force on July 1st last, 980 stillbirths were registered up to the 30th of the month in the great towns of England and Wales, including 171 registered in London, giving a weekly average of 229 and 40 respectively.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

SCOTTISH BOARD OF HEALTH.

ON Thursday, July 21st, the House went into Committee of Supply on the Civil Service Estimates for 1927, Captain FITZROY, Deputy Chairman of Committees, in the chair.

Housing Conditions in Scotland.

On a vote of £2,387,155 for the salaries and expenses of the Scottish Board of Health,

Mr. MACPHERSON said he had read with pain that part of the report of the Scottish Board of Health which referred to housing conditions in Glasgow. He had never read a more pathetic or terrible description of housing conditions than was contained in that report. It had aroused great feeling in Scotland, and he would be glad to hear from the Secretary of State for Scotland that something was being done to remedy conditions which were a disgrace to the twentieth century. The condition of rural housing in Scotland was also a very serious one. It was not so much that new houses were needed—though that was a very essential thing—as that they needed the old houses to be repaired. He thought that the Secretary of State for Scotland should take every step in his power to explain to local authorities what powers they had under the new Act which was recently passed. He would like also to refer to the part of the report which dealt with the special Highlands and Islands Medical Service Fund. During the passing of the Insurance Act there was a provision made for the special conditions in the Highlands and Islands of Scotland, and it was right to state that the Scottish Board of Health had been very active with regard to that part of the country. A great deal of good had been done, and the fund generally had been of very great assistance in those remote parts. The fund was still at the pre-war figure of £42,000, and the Board of Health did not think that they would be able to cope with any new scheme unless and until there was a reconstitution of the fund. They confessed quite openly on page 180 of the report as follows :—

"In the meantime, until the fund is reconstituted, the assistance granted from it must be restricted to the services already in being, notwithstanding that the time seems ripe for a scheme of development in the Highlands and Islands and for the introduction of a system of specialised services, for both of which there is great need in this part of the country."

He need not tell the Committee how essential it was to have a first-class local hospital in the various parts of Scotland. At the present time they had at Dingwall the Royal Memorial Hospital, and they were busy rebuilding and extending one of the finest institutions in the country—the infirmary at Inverness. He did not know whether the Board of Health had taken, so far, any interest in these hospitals ; though he believed they had realised the importance of having efficient local hospitals in the various parts of Scotland. They also wisely recognised that it was necessary to have specialised services. Nobody knew what a hero the ordinary Highland doctor was. In the wildest storm, over bad roads, sometimes over arms of the sea, he went at all hours of the day and night, very often for a miserable fee, to attend to the poorest people in the land, and he, for one, would be glad to see any betterment of the conditions of the Highland doctor's service. It was far too much to expect a single individual to be responsible for the welfare and the health of an entire community without some such assistance as could be given to him from a hospital as nearly situated to his work as possible. He would ask the Secretary of State for Scotland if his attention had been drawn to the appeal made by the medical officers for the consideration of the establishment of a superannuation fund. They regarded themselves now as being in the State service, and judging from the report which he had just been reading it was quite clear that they had some claim to be considered. There was another important point. It was often very difficult for the local doctor to get a suitable house. The local doctor should be guaranteed a house, or the site for a house, in the remote parts where it was often difficult to get them. He was glad to see in any case that the Board of Health were still considering that point. Last year he thought they had caused the erection of three houses for doctors in various parts of the country. That was the sort of thing that was worth doing.

Overcrowding and Disease.

Mr. J. STEWART said there were in Glasgow 277,000 people living in overcrowded conditions. Overcrowding in Scotland was three persons per room, while in England it was only two persons per room. In a single apartment they ranged from four per room to as many as 12 per room, and in the room and kitchen houses they ranged from six and seven to over 12 per house. That must produce results which were inimical to the welfare of the country, and it did r result in the saving of money. They were spending mor very freely everywhere throughout Scotland in furt extension of sanatoria and hospitals to deal with dise In a district of Glasgow where he spent his early days per 1000 of the children born died before they reac one year of age. Yet the standard rate for Glasgow was per 1000. The diseases were respiratory diseases, tuber losis in its various forms, measles, and whooping-cou The children were dying practically like flies. Thousa of children were continuously pouring in and out of infectious diseases hospitals as a result of bad hous conditions. Every child cost well over £1 per week, and cases of tuberculosis about £2 per week. After they w cured they were sent back to the conditions under wh they had contracted those diseases. According to medical officer of Paisley rickets was a consequence of pove and bad environment. Even in the new houses the peo who had just come from the slums to the extent of 28 cent. were living under overcrowded conditions. charge against the Government was that they had insisted upon a better standard of housing. It might true that local authorities were supine, or even hostile an improved standard of housing, but he had yet to le that the authority of the Scottish Board of Health was limited that they could not deal with recalcitrant l authorities. The people from the slums who had g into the new houses were carrying verminous conditi with them. So far as Glasgow was concerned, the prob grew worse and worse. When they investigated it in 1 they discovered that 57,000 houses were required im diately. To-day the number required was 107,000 hou The number of insanitary houses, according to the figure 1909 and 1910, was 13,000. To-day, in spite of s clearances, that number had risen to 20,000. The med officers of the local authority pointed out these things, nobody was concerned about altering the conditions. was a mistake to think that this country could survive v a poverty-stricken population pulled down through housing into a bad state of health, and growing up stu and dwarfed.

Reply of the Under Secretary of State for Scotland.

Major ELLIOTT, replying to the debate, said that t depression had been affecting Scotland for several ye But if they tested the matter by statistics they found there had been an increase in the health of the pe a steady fall in sickness, and an improvement in nearly the great questions affected by the administration of Scotl They had been able to maintain their past standard e in the stress of deep industrial depression, and how they might desire that things should be better they n recognise that they had made some progress. He w like to give some figures dealing with tuberculosis. 1926 the ordinary death-rate per 100,000 of the popula in non-pulmonary cases fell. It was 34 in 1925, and 3 1926. The death-rate per 100,000 of the population f all forms of tuberculosis fell from 110 in 1925 to 99 in 1 Compared with 1916, there were 1744 fewer people who from non-pulmonary tuberculosis ; making a total of fewer deaths from tuberculosis in 1926 compared with 1 The number of beds definitely reserved for the treatm of tuberculosis was steadily rising, and they now had beds as compared with 4170 at the end of 1925, an incr of 169 beds. The provision of tuberculosis beds was tinuing, and a number would come into use in relief of problem in the course of the next few months, or the year. As for infantile mortality, that also continue fall. The rate was 83 per 1000, or eight less than the in 1925, and nine less than the rate for the immedi preceding five years, and 13 less than the rate for preceding 10 years. It was the lowest rate on rec except that for 1923. In the report of the Board of He they had not in any way ignored the desperate and appa state of housing in many places in Scotland. It was their policy to cover up that festering sore. Unless pu opinion was continually reminded of the necessity for de with this problem there was danger that they would into a state of complacency. That was the last w however, which could be applied to the Secretary of S for Scotland in that regard. He had been untiring in efforts to forward the solution of that problem, an bring the facts to the notice of the authorities, an had taken steps of a very drastic kind on more than occasion. The figures showed that last year they had largest number of houses ever built in one year in Scotl and they were able for the first time to do something tow catching up with the arrears as well as dealing with current wastage. This year, up to the end of Jun perhaps the beginning of July, they had built the w of the year's requirements for Scotland, and every h built from now to the end of the year would be a clear and go towards the reduction of arrears. As rega rural housing, nearly all the rural local authorities a

mitted schemes, or had now got schemes in operation. Macpherson had mentioned the Highlands and Islands nd. That fund had an accumulated balance on which y were drawing to the extent of between £18,000 and ,000 a year, but by 1928 or 1929 that accumulated ance would have run out and his right hon. friend would aced with the unpopular duty of approaching the Treasury h a request for special treatment for Scotland.

Ir. T. JOHNSTON moved the reduction of the vote by £100. said that he did so in view of the unsatisfactory nature he Government's reply on the many points raised.

he motion to reduce the vote was rejected by 211 votes 96.

NURSING HOMES (REGISTRATION) BILL.

he Nursing Homes (Registration) Bill was considered by nding Committee A of the House of Commons on Tuesday, y 26th. Mr. MORGAN JONES was in the chair.

Unorthodox Practice.

iscountess ASTOR moved an amendment to Clause 1 ich deals with the registration of homes), providing—

hat where the application for registration relates to a nursing e (other than a maternity home) in which treatment by ical methods is not administered, the authority shall not se to register the applicant on account only of the conditions the home, if a new home, is not under the charge of a dent duly qualified medical practitioner or duly qualified se; that there is not a proper proportion of qualified nurses he staff; or, in the case of a nursing home which was in tence at the commencement of the Act, that it is not under superintendence of a qualified resident nurse.

urged that the amendment would carry out the policy he Minister of Health when he stated that the Ministry ld not cut themselves off from any form of treatment ch was not orthodox. Under the clause as it stood it ld not be possible for an osteopath or Christian Scientist carry on a registered nursing home unless there was a y qualified medical practitioner in charge. The amendt would give complete freedom to Christian Scientist sing homes to be run on their own lines.

ir KINGSLEY WOOD (Parliamentary Secretary to the istry of Health) said that he could not accept the endment. He had no desire to enter into a discussion o the merits of Christian Science. His only desire was ee that the Bill reached the Statute Book in a proper n. The conditions for registration already laid down in clause were very proper conditions, and if the amendment e accepted it would be possible to drive a coach and through the whole of the Bill. Clause 6, however, bled a supervising authority to exempt hospitals, or ilar institutions, which were not carried on for profit. re might be some possibility—he did not know—of an lication being made under that clause by one of the es which Lady Astor had in mind.

iss SUSAN LAWRENCE said that she was strongly against amendment, which, in her view, would make the Bill, ch was already a weak one, quite ridiculous. What was use of a nursing home if no medical treatment was given t?

iscountess ASTOR said that thousands of people had efited from Christian Science nursing homes, but the se would prevent people from getting treatment which y wished to have from unqualified people. In Canada the United States this was a recognised form of treatt, and it was growing in this country.

Ir. CHAMBERLAIN (Minister of Health) said that he failed see what connexion Christian Science had with the endment. If the amendment were carried it would allow sorts of practice to be included within the scope of the , quite apart from Christian Science. Any kind of rthodox practice would be possible under the cloak of amendment, and the local authority would be unable to se registration to homes which were carried on without roperly qualified staff. The Ministry did not want to rive the country of opportunities of healing by anyone ong as those who sought treatment by those methods e perfectly cognisant of the risks which they were ning. But under this Bill they were entrusting the local ervising authority with the power to register nursing es, and such authorities would not be able to avoid t responsibility by reason of an amendment of this nature. would still be open to the local authority to refuse stration on other grounds which were provided in the se.

Ir. J. BAKER said that this seemed to be a backward and a forward step. He was not going to argue that the ical profession in this country was the best on earth, the amendment raised rather too big a question to be led in committee.

iscountess ASTOR said that the Minister of Health had that he did not object to Christian Science, but did the t hon. gentleman realise that under the Bill if Christian ntists wanted to set up a nursing home they could not o?

Sir D. NEWTON: They can do so if there is a medical man in the home.

Viscountess ASTOR: But no one wants a medical man. Continuing, the noble lady said that this was a very serious matter, because they were going to put Christian Scientists into the category of quacks, herbalists, and bone-setters. Hon. Members might laugh, but more and more there would be a demand for Christian Science homes.

Mr. BARKER said he had no knowledge of Christian Science, but he thought that the Committee should be very careful or they would enter into a sort of religious persecution. They ought not to force on people medical treatment in which they did not believe.

Dr. VERNON DAVIES said that they were not concerned with religion or Christian Science. He would remind Lady Astor that Christian Scientists recognised the need for medical treatment in such cases as a broken leg or infectious disease. But these Christian Science homes regarded themselves as the equal of the best nursing homes in the district and charged similar fees. They were therefore a commercial proposition under the ægis, if they liked, of the Christian Science religion. He urged that the Committee had no right to give exemption to such institutions.

Miss SUSAN LAWRENCE said that there was no class more preyed upon than the sick poor. They could see the absurd treatments which were advertised in the newspapers. This amendment would permit every sort of quackery in the world.

Mrs. HILTON PHILIPSON said that she was quite in sympathy with Lady Astor. She thought that the Christian Scientists did an immense amount of good, but the amendment was far too wide, and she would certainly vote against it.

The amendment was negatived without a division.

Amendments Carried.

Mr. GERALD HURST moved an amendment to put a time-limit on the privileges to be enjoyed by those nursing homes which were in existence at the passing of the Act. He said that they did not want a privileged class of nursing homes to be continued in perpetuity.

Sir K. WOOD accepted the amendment, which was agreed to.

Dr. VERNON DAVIES moved an amendment to Clause 4 (by-laws) to provide that if a local authority thought that miscarriages were too frequent at a particular home they might keep an eye on that home and see that the miscarriages were really genuine.

Sir K. WOOD accepted the amendment, which was agreed to.

Information as to the Cause of Deaths.

Sir R. LUCE moved an amendment to leave out of paragraph (*b*) of Clause 4 the reference to the making of a by-law requiring a statement of the cause of a death in a nursing home. He said that these words occurred in the Midwives and Maternity Homes Act, but since that Act was passed last year another Act had been passed altering the law in regard to the registration of births and deaths, and one of the clauses of that Act provided that the cause of death should be a confidential matter between the medical man who attended the patient and the registrar, and if these words were left in the Bill it would be the duty of whoever was running a home to state the cause of death, which she ought not to be in a position to do.

Miss LAWRENCE said that she opposed the amendment. They were dealing with deaths of children, and possibly mothers. This was a matter in regard to which there were sometimes suspicions of malpractices, and she would be very sorry to see the law relaxed.

Sir K. WOOD said that he agreed with Miss Lawrence that they must exercise care in regard to this matter. He had consulted the Registrar-General, and he would see that in every case where there was likely to be any suspicion information was sent to the local supervising authority.

Lieut.-Colonel FREMANTLE said that he was not at all satisfied with Sir K. Wood's explanation.

Sir K. WOOD said that he would endeavour to make arrangements by which the Registrar-General would inform the local supervisory authority of the number of deaths which might occur in a particular home, and if they appeared to be abnormal the authority would be placed on its guard and would be able to send an inspector to see what exactly was going on.

Sir R. LUCE said that it was not the object of the amendment to hide anything. What was desired was to make sure that unauthorised persons were not able to give the cause of death.

Dr. VERNON DAVIES suggested that the local supervising authority should be given the power to ask the Registrar to see the cause of death in any case in which they had a suspicion that there had been any irregularity.

Sir K. WOOD said that obviously he would have to have a further interview with the Registrar-General and would convey to him the wishes of the Committee.

The amendment was agreed to.

Inspection.

Sir R. LUCE moved an amendment to Clause 5 (inspection of nursing homes), designed to make it clear that while the medical officer of health was the officer normally responsible for the inspection of nursing homes the local supervising authority could in certain cases direct other officers to carry out that duty.

The amendment was agreed to.

The Non-County Borough as Supervising Authority.

Sir D. NEWTON moved an amendment to Clause 8 (local supervising authority), providing that the powers of the local supervising authority should be vested in the non-county boroughs as well as in the county councils and county boroughs. He said that many non-county boroughs had a skilled staff of medical officers, sanitary inspectors, and whole-time health officers, and were fully able to carry out the duties.

Lieut.-Colonel FREMANTLE thought that this amendment would lead to duplication of inspection. It would open the door to a lot of abuse. He suggested that a fair compromise would be attained if they inserted the following words :—

"Where the council of any borough or urban district, of which the medical officer of health is precluded from engaging in private practice, shall resolve that the powers of a local supervising authority under this Act would be more efficiently administered by them without detriment to the administration of the Midwives Acts, the county council may by resolution delegate such powers to that council; and that council shall thereby become the local supervising authority under this Act."

Sir K. WOOD said that he thought that they were entitled to say that those authorities which had whole-time medical officers of health should be entrusted with the supervision of nursing homes.

Sir D. NEWTON'S amendment was carried.

Definition of a "Qualified Nurse."

Sir R. LUCE moved an amendment to Clause 9 (interpretation), providing that—

In relation to any premises used and intended to be used solely for the reception of, and the provision of nursing for, a class of patients in whose case the requisite nursing could be suitably and adequately provided by nurses of a class whose names were contained in some part of the register of nurses required to be kept under the Nurses Registration Act, 1919, other than the general part of that register, references in the definition of "qualified nurse" contained in subsection (1) of this section to the general part of the register shall be construed as including references to that other part of the register.

He said that the object of the amendment was to provide that where a home was devoted to one particular class of patient that those in charge of it should be able to employ nurses who had been trained in that particular branch of treatment.

The amendment was agreed to.

A New Clause Applying to London.

Mr. GERALD HURST moved the following new clause applying the Bill to London :—

This Act shall apply to the administrative county of London subject to the following modifications: (i) As respects the county of London the London County Council and as respects the city of London the Common Council shall be the local supervising authority; (ii) any expenses incurred under this Act by the London County Council shall be defrayed as general county expenses and any expenses so incurred by the Common Council shall be defrayed out of the general rate; (iii) the London County Council may delegate to the council of any metropolitan borough all or any of its powers under this Act other than the power to make by-laws, and any such delegation may be either absolute or subject to such terms or conditions as the London County Council may think fit, including conditions for the repayment by the London County Council to a council to whom powers are so delegated of the whole or part of the expenses incurred by that council in the execution of the powers so delegated; (iv) any expenses incurred by the council of a metropolitan borough in the execution of any powers delegated to it shall, in so far as those expenses are not repaid to that council by the London County Council, be defrayed as part of the general expenses of the council, and any fees received under this Act by the council of a metropolitan borough shall be paid into the fund out of which expenses incurred under this Act by that council are to be defrayed.

The clause was agreed to.

The Committee stage was completed and the Bill was reported to the House.

HOUSE OF COMMONS.

THURSDAY, JULY 28TH.

Approved Societies and Dental Treatment.

Mr. HAYES asked the Minister of Health whether he was aware that when a member of the National Health Insurance submitted an estimate for dental treatment which included the administration of a general anæsthetic, the National Amalgamated Approved Society questioned the dentist upon this treatment and demanded to be advised why the extraction could not be made under a local anæsthet and whether, in the interest of the patients, he would reco mend to approved societies the desirability of discontinui the practice of questioning professional treatment. Mr. CHAMBERLAIN replied: I am not aware of the pract of the particular society referred to in the first part of t question, but I understand that the Dental Benefit Jo Committee, by whom the scale of fees and conditions service were negotiated, have at present under conside tion the question of the right of a patient to choose t anæsthetic to be used in his case. Pending the committe decision, I do not propose to take any steps in the matter.

Effects of Insulin Treatment.

Mr. FORREST asked the Minister of Health how ma people suffering from diabetes had been cured by the tre ment of insulin; and in how many cases such treatme had merely controlled the disease but not cured it.—M CHAMBERLAIN replied: Insulin is not a curative ag in the ordinary sense of that term, and it is administe with the object of neutralising for the time being the con quences of the disease, although in certain cases its prolong administration may be followed by a diminution in, even the entire disappearance of, the active symptor No statistics are available as to the number of persons w have received this treatment nor is it possible to ascert the number of cases in which the administration of insu has contributed to the cure of this disease.

FRIDAY, JULY 29TH.

Diphtheria in Dagenham.

Mr. BROAD asked the Minister of Health the number cases of diphtheria in Dagenham during the last 12 mont and the number of fatal cases; whether this disease v prevalent throughout Essex; and whether any and, if what special steps were being taken to combat it.—M CHAMBERLAIN replied: The numbers of cases of, and dea from, diphtheria in the urban district of Dagenham have b as follows :—

	Cases.	Deaths
In 12 months ended July 2nd, 1927 ..	80	9
In 3 weeks ended July 23rd, 1927 ..	23	4

I am advised that there is no exceptional prevalence the disease throughout Essex, although a small outbr recently occurred in Dagenham. I am informed that usual precautions were taken, including the removal of the cases to hospital.

Importation of Cocaine and Cocaine Hydrochloride.

Mr. FENBY asked the President of the Board of Tr if he was aware that the exemption orders applied for year under Section 10 (5) of the Finance Act, 1926, in resp of cocaine and cocaine hydrochloride, being prod liable to duty under Part I. of the Safeguarding of Indust Act, 1921, had not yet been issued; that his departm were refusing to issue these exemption orders, altho the products in question were still not made in His Majes dominions; and that, in consequence, hospitals and general medical service, who were the chief consumer these products, which had to be imported, were compe to pay considerably more than would otherwise be the would he take steps to issue the exemption orders in ques forthwith; and, if not, what further period of time proposed to allow in respect of the products in quest —Sir P. CUNLIFFE-LISTER replied: Before I can make recommendation to the Treasury under Section 10 (5) of Finance Act, 1926, to exempt any article from duty, I m be satisfied that there is no reasonable probability that article will be made in His Majesty's dominions in s stantial quantities within a reasonable period. Preparat for the manufacture of these materials in this country well advanced, and I do not propose to make any rec mendations to the Treasury on the subject at present.

Male and Female Population of Scotland.

Dr. SHIELS asked the Secretary of State for Scotl the male and female population of Scotland for 1913, 1 and 1921 to 1927.—Sir JOHN GILMOUR replied: By Census of Scotland taken in 1921 the male population found to amount to 2,347,642 and the female popula to 2,534,855. Estimates by the Registrar-General Scotland of the male and female populations in the o years referred to in the question are shown in the follo table :—

Year.	Male.	Female.	Year.	Male.	Fema
1913	2,296,370	2,431,762	1924	2,347,228	2,534,
1919	2,313,600	2,506,477	1925	2,352,708	2,540,
1922	2,358,201	2,546,255	1926	2,354,441	2,542,
1923	2,356,587	2,544,513	1927	2,353,500	2,541,

Correspondence.

"Audi alteram partem."

THE SUPER-EGO OF FREUD.

To the Editor of THE LANCET.

R,—The tendency to postulate a living and lligent agency as the cause of phenomena not iediately identifiable with familiar responses to ronmental forces would seem to be an innate acteristic of cerebral protoplasm. The snake that wandered out of the bush on to the sea-shore es at the rolling waters, the dog growls and erects dorsal hair at the moving newspaper, the oceros charges the railway train, the horse shies ts shadow, and man invents hosts of demons, es, ghosts, monitors, and psyches to account, he one hand, for those several feelings, fears, ies, and dreams that are in reality but sensory bral cell disturbances set up by afferent impulses nating from enteroceptive, proprioceptive, and roceptive sources, and initiated therein, directly ndirectly, by environmental stimuli, and on the r hand, for those several behaviours that are but motor reactions of the organism to such afferent ulses. In lower animals such characteristic, essing obvious survival value, is a vital necessity, rimitive man an excusable frailty, in civilised a regrettable backsliding. Just as the liar, scape detection, is often driven, like the ancient ts piling Ossa on Pelion, to cover one lie with her, so those who invent an absurdity in explana- of a phenomenon not altogether understood, find themselves in the unenviable position of ng to invent yet more fantastic absurdities to er up their illegitimate first-begotten one. ent cosmologists, observing that objects fell ss supported, accounted for the earth's apparent ility by the assumption that it rested on the of an elephant. It was a cleverly thought-out cing hypothesis, for such otherwise mysterious ts as thunder and earthquakes were easily ex- ed away, as the shaking and trumpeting of the ic pachyderm. But embarrassing questions began e raised concerning the foothold of the elephant. little difficulty was overcome by recourse to a sal tortoise on whose back the elephant with his dane burden was placed. When, in due course, ar information was requested concerning the ise, the wily sages resorted to the device of muting that creature into a pelagic turtle which set swimming about in an infinite sea, thus tively silencing the hecklers.

e habit of alluding to the mind as though it were mething standing apart from brain is common ngst those who have never seen the inside of a an skull. Unhappily, even medical men are not ether innocent of the fault of applying such tion-begging epithets as "elusive entity" either he mind itself or to what is equatable with it. ude to such expressions as, for instance, "ego," f," "personality," "psyche," &c., which, while ittedly convenient counters of thought in ordinary y-day parlance, should have no place in a strictly itific terminology, seeing that they introduce uncalled-for difficulties and obscurities. Even Haldane, whom his worst enemy could not accuse aterialistic leanings, laughs to scorn all attempts ucidate the meaning of "self." You will never this "*supposed* individual," he says in his Gifford res, for the simple reason that "it is an abstrac- ic" which you "have been trying to identify reality." And as for the "ego," he whittles ay until nothing is left; it is, he says, "a mere nptotic regress towards a notional pure subject knowledge—a thinker without thoughts, an raction, nothing at all." [1]

The "ego" or "self" is, I submit, nothing more nor less than the living body plus a functioning or functionable brain. Our ideas of personality are framed in the somewhat deceptive setting of memory and behaviour. Just as the woodsman who, though he has frequently renewed during the long years of use both haft and blade of his axe until nought of the original implement remains, still continues affectionately to allude to it as "my old axe," so we, equally unwarrantably, confer upon our ever-changing organism a personality extended and immutable in time. We are deceived by the quiet and exquisitely accurate manner in which the atoms that come fit into the niches, so to speak, and carry on with the work of the atoms that go.

Not content with having called into existence a primary cerebral monitor, a fell demon of the unconscious that haunts the cavernous recesses of our brains, and holds the keys of the casket in which are locked our most secret and sacred thoughts, holds them, too, in a grasp that only "analysis" can relax; not content with having housed within us a horrid imp that is ever inciting us to deeds unmentionable (a kind of, to anti-paraphrase Arnold, something-not-ourselves-that-makes-for-unrighteousness), Prof. Freud has now hatched out of the "father-complex" yet another monstrosity which he has christened the "super-ego" who, apparently, stands minatorially over the common or garden "ego." [2] One wonders where it will all stop. At this rate "egos" will have to be distinctively labelled, like the units of star systems, with prefixes, alpha, beta, gamma, &c., or, like pieces of ordnance, with suffixes, Mark 1, 2, 3, &c., or, *horribile dictu*, when they run into the centuries, with numerals after the fashion of the salvarsans and their congeners! But why not save trouble and classify them like other troublesome entities in a simple but comprehensive statement that "Little Egos have Super-Egos whose function 'tis to right 'em. And Super-Egos have higher Egos, and so *ad infinitum*."

I am, Sir, yours faithfully,

CHARLES M. BEADNELL,
Cwmgoedwig, Llanfarian. Surgeon Rear Admiral, R.N.

CORONARY THROMBOSIS.

To the Editor of THE LANCET.

SIR,—Dr. L. Abrahamson, in his interesting account in THE LANCET of July 30th (p. 224) of a case of coronary thrombosis, takes the text-books to task for so rarely treating the condition as "an ante-mortem clinical entity." Surely, the ante-mortem importance of the condition has been recognised for years. The 1908 edition of "Osler" considers very fully the effect of a non-fatal occlusion of a coronary vessel by a thrombus or embolus—a condition of fibrous myocarditis—which "may result from the transformation of areas of anæmic necrosis." Osler, indeed, emphasised in the same place that "a knowledge of the changes produced in the myocardium by disease of the coronary vessels gives a key to the understanding of many problems of cardiac pathology."

Dr. Abrahamson, though quoting Dr. A. G. Gibson's paper,[3] hardly gives the latter sufficient credit for it. Dr. Gibson very ably sums up the symptomatology of the condition of coronary thrombosis (ischæmic necrosis) when he states that "chronic cardiac failure in old people, in the absence of syphilis, old rheumatic affections of the heart, or pernicious anæmia, is almost certainly due to ischæmic necrosis," and that "chronic cardiac failure plus evidence of aseptic embolism makes the diagnosis of ischæmic necrosis practically certain." As will be seen by these statements, therefore, coronary thrombosis must be a common condition in general practice. Dr. Abrahamson, however, does well to refer to the subject, as there is no doubt that practitioners do not

[1] ifford Lectures, 4 and 6, in Pathway to Reality, by the Hon. R. B. Haldane, F.R.S.

[2] The Ego and the Id, by Sigmund Freud. Translated by Joan Riviere. International Psycho-Analytical Library.

[3] THE LANCET, 1925, ii., 1270.

keep the thrombotic origin of heart disease sufficiently in mind.

It is my experience that coronary thrombosis is on the increase—a fact which I attribute to the increased prevalence of influenza latterly. In a recent letter[4] I drew attention to the common occurrence of pulmonary infarction in influenza, and mentioned that embolism occurred in other situations as well. Cerebral thrombosis, I have noted, occurs in old people during the influenza epidemics, and I have no doubt (by analogy) that many of the cases we general practitioners label "myocarditis following influenza" have a similar thrombotic origin in the coronary vessels.

I have seen several cases since the beginning of 1926. One man of 67, who had a "severe cold" in February, 1926, presented the identical picture described by Dr. Abrahamson in his case, with this addition—there was a marked pericardial rub. I expected the man to die; he is still alive, but his heart is badly scarred, and I would not be surprised to see him dropping dead at any time. On Jan. 3rd, 1926, I saw a very fat women over 60, with an acute præcordial pain and an ashy colour and imperceptible pulse, and could only diagnose coronary embolism; the patient recovered. It was curious that I saw an endocarditis case with a pulmonary infarct on Dec. 29th, 1925, and another endocarditis case with hæmaturia (renal infarction) on Dec. 31st, I saw also many embolic cases right up to May, 1926. There is no need to state that influenza was very prevalent during this period. On May 14th and 16th of this year I had two sudden deaths—both very suggestive of coronary embolism. On May 10th I saw a case of pulmonary infarction. And so on.

It is my belief that coronary thrombosis or embolism may occur in healthy people as the result of an attack of influenza, though, of course, it is more likely to occur in the subjects of arteriosclerosis. It is interesting to note that the youngest case described by Dr. Gibson—a woman of 25—followed influenza; and that there was a history of influenza in two of the three cases described by Dr. Carey Coombs, though the latter put inverted commas to the diagnosis of influenza.

It is probable that coronary thrombosis may result as the effect of any of the infectious diseases in the same way. But owing to influenza being so constantly with us I cannot help thinking that it must take first place nowadays.

I am, Sir, yours faithfully,

AMBROSE W. OWEN.

Aberdare, Glam., August 1st, 1927.

TREATMENT OF PERNICIOUS ANÆMIA BY RAW LIVER.

To the Editor of THE LANCET.

SIR,—The report in your issue of August 6th (page 283) of a paper on this subject by Prof. Minot, of Boston, makes giving a short account of a patient now under my care perhaps worth while.

H. M., male, aged 44, was admitted into the Prince of Wales's General Hospital on May 20th last suffering from pernicious anæmia. He was very ill indeed. Free hydrochloric acid was absent from his stomach contents. His teeth were in good order. The red blood-cell count was given as 1,300,000 and the hæmoglobin as 35 per cent. Poikilocytosis, anisocytosis, polychromatophilia, punctate basophilia, seven normoblasts and four megaloblasts were reported by the pathologist (Mr. Benians). Treatment with raw calves' liver was at once instituted, the patient taking 8 oz. per day. Some was pounded and given in soup, some was lightly browned in slices so that the inside remained red; most was taken in bread and butter sandwiches. In addition, a mixture was given of dilute hydrochloric acid with tincture of perchloride of iron (40 ♏ and 20 ♏ respectively) thrice a day after food in half a pint of water. In successive weeks the red cell count rose to 2,300,000, 3,100,000, 3,900,000, and 4,220,000, the hæmoglobin increasing to 75 per cent. and giving, on June 17th (four weeks after admission), a colour-index of 0·9. On this date the only microscopical abnormality noted by the pathologist was very slight anisocytosis. Following discha from hospital on June 21st, there was a fall in the red blo cell count to 3,840,000, but the lost ground was quic regained, 4,250,000 being reported on July 7th, 4,380,000 on July 26th.

The patient looks perfectly well, is earning living as a boot repairer, and continues to take da 4 oz. of raw liver with 30 ♏ of dilute hydrochlo acid and 15 ♏ of the iron tincture after the th principal meals. It is hard to resist the conclus that the claims made for this method of treatm are well founded, and attention may be drawn the paper on the subject by Aitoff and Loewy t appeared in the *Presse Médicale* for April 30th, 19

I am, Sir, yours faithfully,

August 7th, 1927. F. G. CROOKSHANK

[4] THE LANCET, 1927, i., 313.

QUININE AND CHINOSOL SUPPOSITORIE

To the Editor of THE LANCET.

SIR,—The letter of the Hon. Sec. of the C.I Medical Research Committee in your issue of July 3 calls for a reply. In writing my previous letter only object was to contribute to the study o problem which both that Committee and my are anxious to elucidate. It is unusual to speak medical procedures being "imitated"; we desc our methods fully so that other workers may ad them and further test their efficiency.

It is of minor importance who was the first "initiate discussion on the application of chin to contraceptive problems," but in view of the cl put forward by Mr. Roe the following facts be of interest. Miss Ettie Rout informs me chinosol has been in use as a contraceptive for m years, that it was used both in the form of a gr ointment and in greasy suppositories during later years of the war, and that in 1921 a chem manufacturer in London, at her request, made gr suppositories and non-greasy effervescing tal containing one-fifth of 1 per cent. of chinosol. Furt in 1921 a patient brought me from Austria t contraceptive preparations containing chino (1) cocoa-butter suppositories, (2) a greasy ointm and (3) a non-greasy jelly. In 1923 I bough Dresden greasy suppositories containing one-t of 1 per cent. of chinosol in a lanoline-cocoa-bu base, and some others of double that strength.

In the face of these facts it is difficult to ima that there can be any real novelty about the prep tion recommended by the C.B.C. Committee, un of course, there is some new and important fa about the composition or preparation of their chi suppositories which makes them essentially diffe from all previous varieties. I am sure that n others of your readers besides myself would welc the Committee's description of the exact formu the "perfected form" which they have foun satisfactory in over 800 cases.

I am, Sir, yours faithfully,

Harley-street, W., August 8th, 1927. NORMAN HAI

ASTHMA AND ARTHRITIS IN ALTERNAT

To the Editor of THE LANCET.

SIR,—The following case is, I think, some unusual.

Mrs. S——, aged 64, suffered constantly from as for many years. After a short visit to the seasi 1922 her asthma was apparently cured, but she deve rheumatoid arthritis of all the metacarpo-phala joints, with the exception of those of the middle fing both hands, which never became affected. Since the has suffered from either asthma or arthritis, never together, the attacks alternating at quite irregular inte without being influenced by either climate or drugs.

The only reference I can find to this conditi in H. W. Crowe's "Treatment of Chronic Arthr where an almost similar case is quoted as being un

I am, Sir, yours faithfully,

SYLVIA B. WIGODER, M.D. D

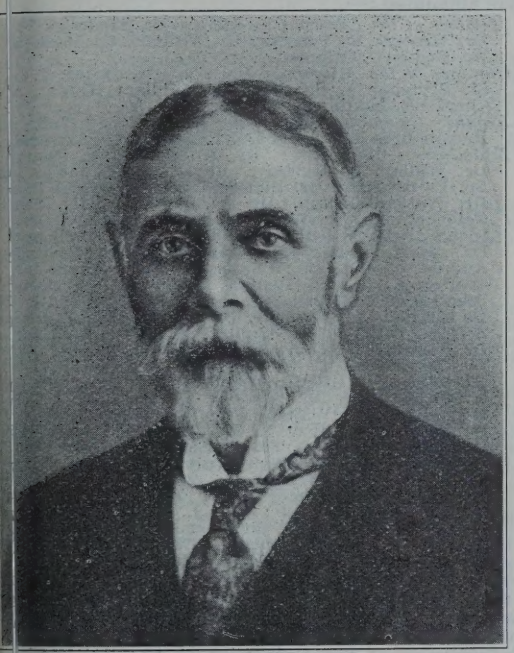
Dublin, August 2nd, 1927.

Obituary.

CHARLES WILBERFORCE DANIELS, M.B. CAMB., F.R.C.P. LOND.

ING in an age of great discoveries in tropical ine, Dr. C. W. Daniels rendered outstanding es as a teacher and an investigator. His modest retiring nature did something to prevent full nition of his merit, but the news of his death on st 6th will be received with real regret by the pupils and colleagues who came under his kindly timulating influence.

n in 1862, Charles Wilberforce Daniels was the son of the Rev. Thomas Daniels, rector of St. , Hulme. From Manchester Grammar School



DR. C. W. DANIELS.

n a scholarship at Trinity College, Cambridge, roceeding for clinical training to the London al. There he rapidly gained a reputation for ency in medicine, with a special leaning to ery, and after qualifying in 1886 he filled the of house physician, house surgeon, and resident heur. He entered the Colonial Medical Service 0 and was sent for duty to the Fiji Islands, he spent several years, and made a careful of the dysentery epidemics occurring annually sugar plantations. In 1894 he was seconded to Guiana and gained a great reputation among onists and inhabitants for his skill as an obstet- His main interest was, however, in tropical ne, and he performed a vast amount of patho- work in Georgetown, much of which was later ied in his book, "Tropical Medicine and ne" (1907–12). He had a large share in starting ritish Guiana Medical Annual Reports, a useful ation to which he was a frequent contributor. s the first to draw attention to the variation in ight and volume of certain organs—notably the in tropical and temperate climates, and in nd 1897 he discovered the adult worms of *demarquayi* and *ozzardi*, later finding those of *stans* also. The specimens were sent home to trick Manson, at that time medical adviser to lonial Office, who was able to add a more description of them. In 1899, at Manson's request, Daniels was appointed by the Royal Society to go to Calcutta to study the life-cycle of proteosoma in culex, and within three months he was able to confirm the work of Sir Ronald Ross in every particular. Proceeding directly from Calcutta to Nyasaland he became a member of the Royal Society's commission on blackwater fever, and together with Stephens and Christophers, was able to accomplish a fine piece of work. He himself suffered from two attacks of blackwater.

From Africa Daniels returned to London as superintendent of the School of Tropical Medicine, succeeding Dr. D. C. Rees. He was particularly successful in conducting the new enterprise, but in 1903 left England again to become first director of the Institute for Medical Research at Kuala Lumpur, in the Malay States, his place as superintendent of the London School being taken by Dr. G. C. Low. His energies in Malaya were attracted by the problem of beri-beri, but it was not many years before he was back in London at his old post. There he remained until 1910, when he took up consulting practice; by this time he had become physician to the Hospital for Tropical Diseases and lecturer on the subject at the London Hospital, at the London School of Medicine for Women, and at St. George's Hospital. In 1912, on the retirement of Sir Patrick Manson, he was appointed an adviser to the Colonial Office, and held this post until 1920, when ill-health made it necessary for him to lead a quiet life in the country. For eight years he suffered from gradual and distressing disablement, and those who knew him during the last part of his life will chiefly remember him for the uncomplaining fortitude with which it was borne.

Dr. Daniels played a very considerable part in founding the practical teaching of the London School of Tropical Medicine. He was a good teacher, possessing an especially clear and direct style, and his influence on students was profound. Sound judgment and a critical mind were reflected both in his clinical and his literary work. "He was a very straight man in every way," writes a colleague, "and never went back on his word. Though he had his likes and dislikes he never spoke unjustly of anyone, nor did he ever run people down behind their backs. He was averse to pushing himself or advertising himself in any way. If he had done so he would have occupied a higher position than perhaps he did, but to the true scientist work comes first and position only second."

Dr. Daniels married the daughter of Mr. William Slater. During his later years he lived at Ilford.

HARRY WILLIAM PIERPOINT, O.B.E., F.R.C.S. ENG., D.P.H. CAMB., LIEUT.-COL., I.M.S.

THE untimely death of Colonel Pierpoint will deeply touch the large circle of friends, Indian and European, whose affection he had gained. Born in 1879, Harry Pierpoint studied at Liverpool, and after taking his conjoint qualification in 1902 became house surgeon at the Royal Infirmary, and then in succession junior demonstrator of anatomy and demonstrator of pathology, in each case holding a fellowship of high distinction. A year after taking his F.R.C.S., in 1905, he received his first commission in the Indian Medical Service, when he was placed in medical charge of the 51st Sikhs (Frontier Force) and acted as civil surgeon to the Khyber Agency. Early in his career he became attached to the political department of the Government of India and much of his service was spent in the Native States and in Persia where before the war he travelled as a member of the International Commission which delimited the Turko-Persian frontier. He stood out as a fine linguist in a service of high linguistic attainment, and his knowledge of Persian, Afghani, and Urdu, combined with personal fearlessness, took him into regions which Europeans rarely entered. His knowledge of medicine covered a wide field, his greatest interest, as befitting a Liverpool graduate, being in orthopædics, and it fell to his lot during the war, at first in association with Colonel

H. Hallilay as commandant, later as commanding officer himself, to organise the great war hospital at Ambala, where he installed elaborate orthopædic and electrical appliances with no aid but that of native mistris from the bazar. This excellent work was rewarded with the O.B.E. in June, 1919. One who was associated with him at that time writes: "Pierpoint was constantly evolving new ideas and exploring lines of investigation suggested by them, but although a clever and virile writer his extreme modesty and hatred of publicity did not permit him to make those contributions to medical literature that his attainments warranted. He was simple and unassuming, but had the faculty of arousing deep affection in almost all who came in contact with him. If he had any enemies, it must have been because of his hatred of injustice and his fearlessness in expressing his views. Among his intimate friends he was the best of company, gay, even volatile, humorous, interesting, and full of charm."

WILLIAM JONES GREER, F.R.C.S. IREL., D.P.H.

Dr. Greer, who died at Newport, Monmouth, on August 2nd, in his fifty-seventh year, was the son of Jones Greer, of Armagh, and was educated at the Royal School there and at the Queen's Colleges of Galway and Belfast, studying medicine later at the Royal College of Surgeons in Dublin. He qualified in 1891, taking his surgical fellowship four years later, and settled in Newport, where he was at first certifying factory surgeon and later medical referee under the Workmen's Compensation Act, while he soon secured appointment on the surgical side of the Newport and Monmouthshire, Pontypool and Blaina Hospitals. From the first he took a keen interest in the diseases and accidents of the industrial community in which he had made his home, and it was fitting that he should be asked by the British Medical Association to preside over the Fractures Enquiry Committee instituted in 1912. The experience there gained may be read in an admirable article on fractures contributed to the "Index of Prognosis" in 1919, in which the economic loss from imperfect treatment is fully set out. A major in the R.A.M.C. (T.), attached to the 3rd Western General Hospital, he was occupied during the war as special surgeon in the military hospital set up at Newport. His other surgical publications include papers on gastro-jejunostomy and fibrous tumours of the mesentery.

FELIX COULSON VINRACE, M.D. R.U.I., F.R.C.S. ENG.

Mr. F. C. Vinrace, who died on July 26th at the age of 69, was the founder of St. Paul's Hospital for Skin and Genito-Urinary Diseases and for 29 years served the institution as surgeon. His father, Dr. John Vinrace, practised in Birmingham for half a century and had four sons who entered the medical profession. Felix Vinrace was educated at King Edward's Grammar School, at the University of Birmingham, and at Queen's College, Galway. He also studied medicine at University College and at the London Hospital, from which he qualified as M.R.C.S. in 1879. Two years later he graduated as M.D. and in 1886 he became F.R.C.S. The period that followed was spent in gaining a wide general experience; he held appointments as medical officer to the Hospital for Women, Soho, demonstrator of anatomy at the London Hospital, and house surgeon, house physician, and resident obstetrician at several Birmingham hospitals. In 1887 he joined the honorary staff of the Birmingham Skin and Urinary Hospital for which he worked actively for 32 years, being elected consulting surgeon in 1921. In 1898 he started St. Paul's Hospital, in Holborn, for the treatment of genito-urinary, cutaneous, and venereal diseases, and here again gave excellent service both as visiting surgeon and later as president. The success of the hospital, which was the first of its kind in this country, has largely been due to his enthusiasm and it owes much to his personal generosity. Mr. Vinrace's knowledge both of medical technique and of hos management was constantly being reinforced visits to foreign institutions, and during the 30 years he had travelled regularly on the Conti with this object. He practised as a consultant in London and Birmingham.

Mr. Vinrace was a bachelor. One of his brot is Dr. Dennis Vinrace, of London.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—names of the new members admitted to the College, a the officers of the College appointed for the ensuing at the Comitia held on July 28th, were published in LANCET last week. At this Comitia the following comm were appointed:—

Members of the Library Committee.—Dr. Frederick P. W Dr. Herbert R. Spencer, Dr. William C. Bosanquet, Dr. Hector C. Cameron.

Curators of the Museum.—Dr. John M. Bruce, C.V.O., Sir Seymour J. Sharkey, Dr. William Hunter, and Charles E. Lakin.

Finance Committee.—Dr. John Fawcett, Sir John Fr Harpin Broadbent, and Dr. James Hugh Thursfield.

Examiners.—Chemistry: Dr. Robert H. A. Plimmer Dr. William H. Hurtley. Physics: Mr. James Ha Brinkworth and Dr. Sidney Russ. Practical Pharm Dr. Nathan Mutch, Dr. William J. Adie, Dr. Gainsborough, Dr. Victor James Woolley, and Dr. Or Inchley. Physiology: Dr. Bertram J. Collingwood Dr. Swale Vincent. Pathology: Sir Frederick Andrewes and Dr. Charles Bolton. Anatomy: Grafton E. Smith. Medical Anatomy and Principle Practice of Medicine: Sir Percival Horton-Smith Ha Dr. Arthur G. Phear, Dr. Herbert S. French, Sir Jo Briscoe, Dr. John A. Nixon, Dr. Frederick S. Lang Dr. Charles E. Lakin, Dr. David Henriques de S Dr. Francis M. R. Walshe, and Dr. James A. To Midwifery and Diseases peculiar to Women: Dr. Cut H. J. Lockyer, Dr. Eardley L. Holland, Mr. Ma Donaldson, Dr. William Gilliatt, and Dr. Stanley Public Health: Part I., Mr. John H. Ryffel; Par Dr. Charles Porter. Tropical Medicine: Dr. John Ledingham (Pathology and Tropical Hygiene); Dr. H. H. Scott (Tropical Medicine and Surgery). Ophth Medicine and Surgery: Dr. James Stansfield C Psychological Medicine: Part I., Dr. Eric D. Macna Part II., Dr. Robert P. Smith and Dr. C. M. Hinds H Laryngology and Otology: Dr. Donald R. Pat Murchison Scholarship, 1928: Dr. Charles Bolton an James L. Birley.

Sir Hugh Kerr Anderson was elected a councill the place of Dr. J. H. Sequeira, resigned.—Dr. A. J. was re-elected a representative of the College on the of Governors of the University of Sheffield for a p of three years from June 30th, 1927.—The Pres announced that he had appointed Sir Humphry Rol to deliver the Harveian Oration in 1928.—The Reg reported the following acceptances of appointm Dr. G. F. Still as Fitzpatrick Lecturer for 1928; Dr. Collier as Lumleian Lecturer for 1928; Dr. E. P. P as Oliver Sharpey Lecturer for 1928; Dr. H. H. D Croonian Lecturer for 1929; Dr. T. Izod Benne Goulstonian Lecturer for 1928; Dr. R. D. Rudolf Delegate of the College at the Centenary Celebrati King's College, Toronto, in October, 1927; Dr. L. Burrell as a delegate of the College at the Conferen Tuberculosis in London on June 30th and July 1st an 1927.—The Moxon Medal was awarded to Sir Henry on the recommendation of the Council.—The Baly was awarded to Prof. A. V. Hill on the recommend of the Council.—Sir George Newman and Sir Newsholme were re-elected Members of the Exe Committee of the Imperial Cancer Research Fu The award by the University of Edinburgh of the Mur Scholarship to Mr. John M'Michael, an undergradu that University, was announced.—Communications received from: The Secretary of the Royal Colle Surgeons, dated May 12th, June 10th, and July 14th, respectively, reporting the proceedings of the Cour that College on those dates; the Board of Trade, aski College to advise them whether a suitable microscope be part of the compulsory medical instrument equi of ships that are required to carry a medical officer; Secretary of King Edward's Hospital Fund for Lo asking if the College would desire to give evidence the Special Committee of Inquiry, called "The Pa Committee." Dr. C. McMoran Wilson and Dr. H. Thu were nominated; the Hon. Secretary of the Child Gu Council, inviting the College to appoint a represen to serve on its Council. Dr. F. J. Poynton was el the Ministry of Health, enclosing a copy of a note fr

Ambassador, asking if the College desires to appoint esentative to the Congress of Medicine in Paris in r, 1927. The President was appointed the repre- ve of the College. A report from the representative College on the General Medical Council of its pro- gs at its meetings, May 24th to 27th, 1927, was d and entered on the minutes.—A report from Dr. nter of the reception of a deputation from the People's of Health by the Minister of Health on June 28th, was received and entered on the minutes.—On the of Sir William Hale-White it was resolved unanimously n expression of much regret at his resignation and of eat appreciation felt by the College for the ability, nd devotion with which he had carried out his duties rly 50 years should be conveyed to Mr. Hallett.— ooks and other donations to the library presented the last quarter were received and the thanks of the were voted to the donors.—After some further College business, the President dissolved the Comitia.

AL COLLEGE OF PHYSICIANS OF LONDON AND NS OF ENGLAND.—The undermentioned diplomas intly conferred upon the following candidates :—

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.

rd, G. L. Alexander, Charlotte Bacon, Elizabeth Bird, C. E. Chantler, R. P. Crawford, M. B. D. Dixey, W. N. er, C. S. James, J. V. Landau, K. Lindberg, T. McClurkin, Madwar, L. M. Maybury, W. B. A. Moore, Honor O. vell, R. A. Pallister, F. M. Purcell, G. W. St.C. Ramsay, M. Rice, C. E. Sharp, E. C. Smith, C. R. Steel, N. H. liwala, and K. C. Yeo.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

ey M. Coleman, Gerald F. Graham. Frederick H. Healey, ney Hillier, Eric G. Howe, William McCartan, Doris M. um, Thomas Paton, Frank E. E Schneider, Francis L. tt, George N. O. Slater, and Thomas Tennent.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.

loud O. Abdeen, James B. Baird, Jack Bernstein, Charles C. Byrne, Edwin E. Day, Eric W. Gutteridge, David R. egregor, Ronald M. Savege. William McE. Snodgrass, rge E. Tremble, Mary A. Wiles, and Wilfrid C. S. Wood.

ollowing report from the Committee of Management, June 21st, 1927, was received and adopted: The tee of Management beg to report to the Royal on the following subjects: (1) the resignation of retary of the Examining Board in England; (2) the ment of a new secretary; (3) the recognition of institutions.—The Committee have received a ication from Mr. F. G. Hallett expressing his desire e, in December next, from the post of Secretary Examining Board in England. The Committee end that Mr. Horace Hayter Rew, who has held of Assistant Secretary to the Examining Board land for the last seven years, be appointed y to the Board for the period of one year from next, at a salary to be proposed by the Conjoint Committee. That the following Universities and be added to the list of institutions whose graduates cine are admissible to the Final Examination in e, Surgery, and Midwifery, under the conditions of ph IV., Section III. of the Old Regulations, and ph III., Chapter III. of the Regulations dated Jan. 1st, amely: The Masaryk University of Brno, Czecho- ; the Kornensky University of Bratislava, Czecho- ; the Medical College of Virginia, Richmond, U.S.A.; Meharry Medical College, Nashville, Tennessee,

e Final Examination held from July 5th to 27th owing candidates were approved in the subjects d, but are not eligible for diplomas :—

cine.—R. E. Alderson, P. V. Bamford, O. A. Beadle, V. Bradlaw, Dorothy M. Bradley, W. E. R. Branch, . Buchanan, Doris E. Bunbury, Doris B. Clay, Amy G. g, E. Cohen, E. G. C. Darke, P. M. Deville, J. L. H. on, Muriel M. Edwards, Antoinette H. P. Ellis, C. J. , H. T. Flint, H. G. Floyd, Helen M. G. Foster, W. kett, H. D. F. Fraser, T. R. Gaha, Caterina P. Giles, a Gimpelson, Barbara M. L. Glover, P. S. Goonewardene, . Greene, Nellie M. E. Hallinan, B. Haring, A. S. Hatch, garet A. L. Herbertson, Esther M. Hoskin, W. F. son, T. I. Hughes, W. A. Hutton, S. Indersen, R. A. stein, Agnes H. Jackson, D. F. Kanaar, G. H. Kennett, K. M. Khan, Theresa J. Lee, Edith G. Limmex, S. McConnell, H. J. Maister, H. E. Mansell, N. M. heson, A. A. Miles, R. V. Mone, D. T. R. Morris, vani Natarajan, W. D. Neill, R. Newton, A. T. Pagan, N. Parish, W. G. Rees, S. H. Reeves, Norah Regan, abeth J. Robinson, J. I. Sapwell, S. Scheinfein, T. G. t, F. G. V. Scovell, Margaret P. Shackle, Doris G. velle, T. E. N. Simpson, Clarice A. Skidmore, Dorothy s, A. D. Tomlins, Sybil E. Tremellen, D. R. Tweedie, I. Wainwright, A. J. Walsh, W. A. S. Welsh, and J. Wigg.

Surgery.—A. Ahmed, M. E. Albury, R. E. Alderson, F. W. Allinson, S. W. Allinson, A. F. Alsop, R. Anderson, Katherine Barnett, H. L. W. Beach, W. J. H. M. Beattie, W. V. Boyle, J. W. Bromley, J. T. Cahill, H. C. D. Calvey, Eleanor M. Carless, C. S. Carter, Mabel O. Cassels Freeston, G. A. Coggin, M. Coleman, M. Coll, N. B. Colman, B. W. Cooke, E. C. Cosgrove, F. R. Craddock, W. S. Creer, Mona C. Davies, Helena M. de Hartog, W. E. Dornan, F. W. Earle, J. A. Edward, C. H. Egan, E. Ellis, G.H.Evans, R. G. P. Evans, J. Foster, S. Gifford, Helen R. Goodman, Tatiana Gourlande, E. L. Graff, R. A. P. Gray, C. S. Gross, Brenda G. Hallett, M. R. W. Hart, J. L. Hartley, W. J. Heely, R. A. Hill, L. T. Hilliard, G. M. Housden, J. H. Howells, Lilian J. Hubble, E. C. H. Huddy, E. H. Hudson, S. Indersen, B. R. M. Johnson, H. A. Kidd, K. Knowles, H. N. Knox, E. Landau, T. C. Lansdale, J. M. Lees, R. F. Lister, W. H. Miller, W. Milligan, C. F. Moore, W. E. S. Moreton, T. Morton, W. H. Myburgh, H. P. Nelson, W. A. Nicholson, H. G. Nimbalker, W. R. S. Panckridge, J. R. Peacock, P. I. Peltz, E. R. S. Phillips, L. M. J. A. Pilot, G. W. Pimblett, D. Preiskel, A. M. Roberts, Florence E. Robinson, R. Rose, A. de la C. Russian, B. C. Singh, Lucy Stokoe, Ivy E. Tanner, B. A. Taylor, J. H. R. Thomas, S. L. Tunnicliffe, H. N. Walker, D. K. Weston, Hannah E. Wilby, W. J. Wilkin, Dorothy M. Wilkins, E. W. Winch, C. Wroth, E. C. Wynne-Edwards, and R. A. Zeitlin.

Midwifery.—Annie F. Allport, J. V. Almeyda, M. A. E. Anous, C. Arkles, W. R. Ashby, G. D. Augenlicht, Julia C. H. Avery, W. J. H. M. Beattie, C. A. Bence, Olwen R. Binyon, T. Blezard, Ruth Bocock, F. G. Booker, G. N. Box, W. E. R. Branch, J. R. Buchanan, W. Buckley, B. W. Cartwright, A. J. W. Chamings, H. A. Clarke, G. A. Coggin, E. Cohen, M. Coleman, H. E. V. Conceicao, E. Courtin, F. R. Craddock, Pera R. C. Crawford, J. E. Crooks, S. H. Croot, C. F. J. Cropper, A. W. Cubitt, A. M. Cunningham, A. Dala, E. R. L. Davies, Ethel G. Davies, Evelyn M. Davies, H. S. Davies, R. G. de Kock, R. de Sousa, Olivia F. Digby-Smith, C. J. V. Dobbin, O. C. Dobson, C. H. Egan, Dorothy E. Eglington, L. L. Eksteen, D. Ellis, J. W. Ellis, H. Epstein, G. H. Evans, M. J. Evans, C. J. Farr, B. L. Fishout, H. G. Floyd, J. Foster, C. R. E. Freezer, G. H. Garfield, T. O. Garland, Helen R. Goodman, J. C. Gordon, J. T. Gray, R. A. P. Gray, C. R. Greene, G. N. Grose, M. M. Gyi, H. N. Hallam, Brenda G. Hallett, J. L. Hartley, W. Heath, Kathleen M. Henderson, W. E. Herbert, Margaret A. L. Herbertson, R. A. Hill, L. T. Hilliard, F. E. G. Hopkins, Esther M. Hoskin, Josephine M. Howells, W. H. Hubert, E. C. H. Huddy, F. H. Hunnard, Dorothy M. James, E. T. James, B. R. M. Johnson, O. T. Jones, R. T. Jones, S. E. L. Kahla, D. F. Kanaar, C. A. Keele, R. A. Kennedy, S. J. Knight, Marie Krestin, I. B. Lawrence, Margaret Leathes, J. M. Lees, G. Leighton, Florence M. Lessing, I. B. Limbery, R. F. Lister, A. Long, C. P. Madden, H. I. Maister, F. B. Mallinson, F. Mansour, Mary L. Marsh, W. H. Miller, W. Milligan, M. V. Modi, H. A. Mohamed, P. H. L. Moore, Martha A. Morgan, D. T. R. Morris, G. van R. Mostert, D. B. Mumby, Bhavani Natarajan, H. P. Nelson, W. A. Nicholson, L. J. O'Loughlin, M. T. O'Sullivan, Ella M. Oswald, E. A. E. Palmer, Irene A. Papenfus, T. N. Parish, G. Parker, J. W. Pickup, G. W. Pimblett, A. E. Porritt, D. Preiskel, G. E. A. Prins, N. L. Probert, Dorothy M. M. Rees, W. G. Rees, W. G. Richards, J. H. Richmond, L. G. R. Roberts, I. M. Robertson, C. J. Sanderson, J. I. Sapwell, S. Scheinfein, T. G. Scott, D. A. Seaman, J. Seidenberg, H. N. Skelton, F. Smith, A. Southgate, B. Spencer, E. H. Spickett, S. H. Sgarey, Lucy Stokoe, W. P. R. Swemmer, A. G. C. Taylor, J. E. Thomas, J. H. R. Thomas, E. W. Thompson, J. P. Thyne, Elsie J. Todd-White, A. D. Tomlins, H. D. Vasey, J. Vaughan-Bradley, Kathleen A. Vernon, J. H. Wainwright, H. N. Walker, W. H. S. Wallace, K. Watman, A. J. Watson, W. S. Welsh, D. K. Weston, H. O. White, A. R. N. Whitlow, J. W. Wigg, W. J. Wilkin, Dorothy M. Wilkins, B. Williams, G. N. Wood, J. L. M. Wood, Elsie E. Wright, and C. Wroth.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have passed the Triple Qualification examination :—

FINAL EXAMINATION.

C. S. Ramachandran, A. W. M. Battersby, S. B. Stoker, A. S. Speirs, A. G. Young, C. J. Peoples, K. C. Voon, B. F. Lewin, F. X. Oliveiro, Alice Law, H. J. Marcelin, J. D. Cooper, H. C. Duncan, D. J. Campbell, J. B. J. Cameron, J. L. Thomson, William Moodie, S. K. Rigg, H. S. Strachan, Rangachari Padmanbhachari, J. W. Galloway, H. N. Maclachlan, Theodore Lipschitz, Dorothy J. O. Mitchell, L. M. Green, C. J. P. Paglar, J. G. Buchanan, A. G. Couston, E. M. Stone, R. G. McInnes, H. A. Brentnall, G. R. Day, Edwin Amarasinghe, H. D. M. L. Murray, and V. H. Leigh-Barlow.

Medicine.—P. G. Sawmy, G. M. Johnson, T. A. W. Wilson, Eileen McCabe, G. W. Milledge, R. S. Sawani, N. C. D. Gupta, G. D. Roche, Sandaman Sivalingham, C. D. C. Golding, K. R. Trembath, Walter Campbell, A. B. Xuma, and F. A. Buttner.

Surgery.—George M. Johnson, E. P. N. Abeysundere, T. B. Dobson, S. E. W. Boland, Ram Chandra Adhikaju, K. R. Trembath, Samuel Jurawan, Suppiah Kanagalingham, J. E. Mulholland, Tan Chong Yan, and W. T. A. Pearce.

Midwifery.—Puravasthu Gopaula Sawmy, T. B. Dobson, J. S. T. Isbister, G. W. Milledge, Ram Chandra Adhikaju, Raghbir Singh Sawani, Nripas Chandra Das Gupta, James Masilamani, F. H. Emery, G. D. Roche, Sandaman Sivalingham, Maurice Klar, C. D. C. Golding, Sunderdas Tulsidas Sodah, Samuel Jurawan, Suppiah Kunagalingham, W. T. A. Pearce, Walter Campbell, I. McG. Chisholm,

J. B. Forrester, Friedrich Adalbert Buttner, J. E. Felix, and J. W. A. M. McGuinness.

Medical Jurisprudence and Public Health.—Iskander El-Aroussi. H. T. Chapman, A. H. Fraser, Chee Juay Poh, A. B. P. Amies, Adbel Kader Mohamed Attia, Okunade Ajibade, Alexander Arnott, William Wallace, Florence Letitia Macdonald Millard, F. K. Fenton, B. A. Noel de Souza, H. A. Shakerley, R. D. Buckner, Chrysostom Joseph, Raghbir Singh Sawani, Sandaman Sivalingham, and Neil Mortimer Vallely.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on July 20th the title of assistant professor of anatomy at University College was conferred on Dr. Henry Albert Harris.

Grants were made out of the Thomas Smythe Hughes Medical Research Fund to Prof. Mary Lucas Keene, M.B., and Evelyn Hewer, D.Sc., for the continuation of their investigations of the human fœtus, and to Kathleen Chevassut, M.Sc., for the continuation of research on the cerebrospinal fluid.

The Council for External Students has elected Dr. Graham Little to be its chairman for 1927–28, and Sir Holburt Waring and Sir Wilmot Herringham have been elected chairmen of the Finance Committee and the Committee of Medical Members of the Senate respectively.

CRUMPSALL INFIRMARY, MANCHESTER.—A new wing has been added to Crumpsall Infirmary, one of the largest Poor-law institutions in the country, and was formally opened on August 4th by Prof. A. H. Burgess, surgeon to the Manchester Royal Infirmary, who was at one time resident medical officer at Crumpsall and was afterwards for ten years a visiting surgeon.

UNION FOR SMALLER HOSPITALS.—A united council has been formed consisting of hospital representatives with the object of raising money for the smaller hospitals by combined schemes, which will not interfere with the ordinary income of individual hospitals. It is hoped to create a foundation fund of £20,000 to inaugurate the making of the scheme, and the council is organising a united hospitals pageant and festival at Olympia next year.

EGYPTIAN MEDICAL CONGRESSES.—The Royal Egyptian Legation draws attention to the fact that no connexion exists between the Medical Congress which the Egyptian Government proposes to organise in Cairo about December of 1928 and what is called Les Journées Médicales organised for the *Revue Pratique des Maladies des Pays Chauds* by Dr. Zeitoun. Particulars of the latter conference, which will be held in December, were published in THE LANCET of April 30th (pp. 939, 952).

GUY'S HOSPITAL.—The annual report of Guy's Hospital for 1926 records with uneasiness a deficiency of £24,000 in last year's income and expenditure account. In "a year of normal income and no abnormal outgoings this is an obvious danger-signal; re-endowment must still be an aim. If another £500,000 can be added within a reasonable time to the re-endowment fund, Guy's Hospital, while still offering a field for the charitable, would be able to dispense with those urgent calls for help which by iteration detract from the force of their urgency." The opening of the artificial sunlight department has appreciably increased the out-patient attendances during the year. An average of 80 patients have attended the department daily and 23,951 treatments have been administered.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—An all-day course in medicine, surgery, and the specialties will be held at Queen Mary's Hospital, Stratford, from August 29th to Sept. 10th. All the departments of the hospital will be open continuously to those enrolling, and the course is intended for practitioners who wish to refresh their knowledge (fee £3 3*s.*) or £2 2*s.* for either week. The subjects of special courses in September will be: medicine, surgery, and the specialties, at the Westminster Hospital, all-day course (fee £3 3*s.*), diseases of children, at the Queen's Hospital, all-day (fee £3 3*s.*); ophthalmology, at the Royal Westminster Ophthalmic Hospital, afternoons only (fee £4 4*s.*); orthopædics at the Royal National Orthopædic Hospital, all-day mostly (fee £2 2*s.*); and psychological medicine at Bethlem Royal Hospital, bi-weekly lecture-demonstrations for one month (fee £1 1*s.*). Besides these special courses the Fellowship provides a general course of instruction at the associated hospitals. Further particulars of this and also copies of all syllabuses and of the *Post-Graduate Medical Journal* (annual subscription 6*s.*, post free) may be had from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

THE late Lady Henry left by will, among bequests, £10,000 to St. Thomas's Hospital and £2 University College Hospital.

ST. THOMAS'S HOSPITAL DINNER.—The a dinner of old students of St. Thomas's Hospital w held on Friday, Oct. 28th, at St. Thomas's House, La Palace-road, at 7.30 P.M. for 8 P.M., Sir Charles A. Ba in the chair.

THE LIVERY COMPANIES AT GOLF.—A silve bowl to be known as the "Prince Arthur Cup" has presented for competition at golf between the Companies of London, to commemorate the 250th an sary of the Coachmakers' Company under their p charter, and the honour done to the Company by H Prince Arthur of Connaught joining it and becomi Assistant. It has been decided that a competition s take place at Walton Heath on Oct. 5th by bogey foursomes, each Company to send a team of six, and f particulars will be issued in due course.

All competitors must be Freemen of the City of Lo The Society of Apothecaries being one of the City I Companies, its members, provided they have taken u Freedom of the City, are eligible to take part i competition. Any who would like to do so should municate particulars of their handicap to the Clerk Society, Apothecaries Hall, Water-lane, E.C., or t Vincent Dickinson, who will be in charge of the arrange for the Society.

Medical Diary.

Information to be included in this column should re in proper form on Tuesday, and cannot appear if it r us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS,

WEST LONDON POST-GRADUATE COLLEGE, London Hospital, Hammersmith, W.

MONDAY, August 15th.—10 A.M., Dr. Dowling: Dept. 2 P.M., Mr. Addison: Surgical Wards. Dr. Ironside: Medical Out-patient Dept.

TUESDAY.—11 A.M., Mr. Endean: Demonstrati Venereal Cases. 2 P.M., Dr. Shaw: Medical patients. 2 P.M., Mr. Hamblen Thomas: T Nose and Ear Dept.

WEDNESDAY.—2 P.M., Mr. Tyrrell Gray: Oper 2 P.M., Dr. Scott Pinchin: Medical Out-pa 2 P.M., Mr. Gibb: Eye Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neuro Dept. 11 A.M., Mr. Simmonds: Orthopædic 3 P.M., Sir Henry Simson: Gynæcological War

FRIDAY.—11 A.M., Dr. McDougal: Electrical 11 A.M., Dr. Pritchard: Modern Methods in Me

SATURDAY.—10 A.M., Children's Out-patient Dept., Ba Therapy Dept.

Operations, Medical, Surgical, and Special Out- Departments, daily, 10 A.M. to 5 P.M. Sat 10 A.M. to 1 P.M.

Appointments.

BINGHAM, T. H., M.D., B.Ch. Belf., D.P.H., has been ap Assistant Medical Officer of Health, Swansea.

CULLEN, B. T., F.R.C.S. Edin., M.B.N.U.I., Medical St. Shelim's Hospital, and Assistant Medical Officer, Tuberculosis Hospital, Cavan.

HOWELLS, G. H., M.B., B.S. Lond., Registrar to the Ear and Throat Department of Charing Cross Hospital.

JONES, J. D., L.R.C.P. & S. Edin., D.P.H., Medical Offic Public Vaccinator for the Festiniog District of the Fe Union.

LLEWELLYN, T., L.R.C.P. Lond., M.R.C.S., D.P.H., Officer of Health and M.O. to the Educational Aut Port Talbot.

MCALLISTER, A., F.R.C.S. Eng., Assistant Surgeon Samaritan Free Hospital for Women, and As Gynæcological Surgeon to the Royal Waterloo H for Women and Children, London.

PETTY, M. S., M.B. Camb., F.R.C.S. Edin., Hon. Surg British Hospital, Buenos Aires.

Vacancies.

For further information refer to the advertisement columns.

...wyth Infirmary, &c.—H.S. £200.
..., Carnarvonshire and Anglesey Infirmary.—H.S. £200.
...y, Beckett Hospital and Dispensary.—Jun. H.S. £140.
...oyal Mineral Water Hospital.—Res. M.O. At rate of £130.
...l County Hospital.—Asst. H.S. At rate of £130.
...gham City.—M.O.H. £1800.
...gham, Selly Oak Hospital, &c.—Med. Supt. £1000.
...Townleys Hospital, Farnworth.—Second Asst. M.O. £225.
...Borough Hospital.—Sen. M.O. and two Jun. M.O.'s. At ...e of £150 and £125 respectively.
...n, Hove and Preston Dispensary.—Hon. Surg. Reg.
...General Hospital.—H.P.'s, H.S.'s., Res. Obstet. O., and ...s, H.S. Each at rate of £80.
... King Edward VII. Welsh Nat. Mem. Assoc.—Area ...b. P. £696. Also Asst. Res. M.O., for North Wales. ...nat. £200.
... Royal Infirmary.—Ophth. H.S. At rate of £75.
...then, Joint Counties Mental Hospital.—Sen. Asst. M.O. ...50.
... Royal Infirmary.—Hon. Radiologist.
... London Maternity Hospital, City-road, E.C.—Registrar. ...00.
...ter, Royal Infirmary.—Third H.S. At rate of £150.
...es, Crichton Royal Mental Hospital.—Clin. Pathologist. ...00.
...rican Medical Service.—Asst. Bacteriologist. £600.
...n, Hants, Knowle Mental Hospital.—Sen. Asst. M.O. ...00.
...rd Borough, &c.—M.O. £800.
... Royal Infirmary.—Res. Surg. O. £250.
...Lady Chichester Hospital.—H.P. At rate of £100. Also ...n, H.P. At rate of £50.
... Maternity Hospital, Underwood-street, E.—Hon. Asst. ...stet.S.
... City.—Asst. M.O., &c. £600.
...s, Hants, King George's Sanatorium for Sailors.—Asst. ...O. At rate of £200.
...ol, Eye and Ear Infirmary.—Hon. Asst. S.
... Temperance Hospital, Hampstead-road, N.W.—Hon. ...æsthetist.
...ster, Hospital for Consumption, &c.—Res. M.O. £200.
...General Hospital for South-East London, Greenwich-road, ...—Res. M.O. £250. Also Anæsthetist. 52 guineas.
...tle-upon-Tyne, University of Durham, College of Medicine. ...of. of Anatomy.
...n, City, Public Health Dept.—Temp. Asst. Sch. M.O. ...11s. per week.
...h, Norfolk and Norwich Hospital.—H.S. £120.
...ham Children's Hospital.—Res. H.P. At rate of £150.
...ham General Hospital.—Res. Cas. O. At rate of £200.
...th, South Devon and East Cornwall Hospital.—Cas. H.S.
...nd, Surrey, Royal Hospital.—Asst. H.S. At rate of £100.
...ree Hospital, Gray's Inn-road, W.C.—H.P.
...Northern Hospital, Holloway, N.—H.S. At rate of £70.
... Royal Hospital.—Hon. Asst. Ophth. S.
...rt Infirmary.—H.P. £175.
...-on-Tees, Stockton and Thornaby Hospital.—Jun. Res. ...O. £150.
...ospital, Grove-road, Balham, S.W.—Sen. and Jun. Res. ...O.'s £150 and £100 respectively.
...ondon Hospital, Hammersmith-road, W.—H.P. and two ...S.'s. Each at rate of £100.

...ths, Marriages, and Deaths.

BIRTHS.

...ER.—On August 3rd, at Bexley, Kent, the wife of John ...ander, M.D., of a daughter.

...ER.—On July 31st, at Grange-gardens, Eastbourne, ... wife of D. G. Churcher, M.D., F.R.C.S., of a daughter.

...—On August 1st, at Headingley, Leeds, the wife of ... Nigel Crowe, M.B., B.S., of a son.

...—On August 5th, at Berrydown, Cliff-avenue, Margate, ... Marjorie, wife of Dr. A. C. V. Gosset—a son.

MARRIAGES.

...NA—TODRICK.—On August 6th, at St. John's U.F. ...rch, Haddington, Robert Merttins Bird Mackenna, ...R.C.S., L.R.C.P., to Helen Dora, daughter of Mr. T. W. ...rick, Old Bank, Haddington.

...—STOCKER.—On August 2nd, at Trinity Presbyterian ...rch, Bromley, Kent, Dr. Henderson Whyte, Hon. ...ff, London Hospital, to Vera Marguerite, second daughter ...he late W. W. Stocker and of Mrs. Stocker, Shawfield ...k, Bromley.

DEATHS.

...—On July 31st, at Hesdin, France, Gilbert Laurie Kerr ...lay, B.A. Camb., M.B., C.M. Edin.

A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

A HEALTH REPORT FROM NIGERIA.

IN the report for 1926, signed by Mr. K. L. Hall, acting senior assistant secretary, it is stated that during the year there has been a notable absence of epidemics of relapsing fever and cerebro-spinal fever and small-pox such as occurred during previous years; the only exceptions being Ondo Province and Keana in Benin Province, where moderate outbreaks of relapsing fever occurred during the year. Cases of yellow fever were reported from Warri, Oshogbo, and Lagos in the southern provinces. The Rockefeller Yellow Fever Commission, now instituted at Yaba, Lagos, provided Noguchi protective vaccine, and all Europeans who desired were vaccinated. A special effort has been made to organise anti-mosquito measures. In Lagos the numerous small craft plying in the harbour and creeks have been subjected to special attention, as they have been found to provide ready breeding places for stegomyia.

Throughout the year plague continued epidemic in the town of Lagos and in the province of Ijebu-Ode. In Ijebu on the mainland the chief centre for plague is the town of Ijebu-Ode, but cases have been reported from numerous other towns in the province. In Lagos the number of cases of plague showed a short rise in March, and from the beginning of July there was a gradual rise which became more pronounced during October. From the latter part of October to the end of the year there was a very decided fall in the numbers. This rise and fall was accompanied by a similar rise and fall in the percentage of rats found to be suffering from plague. The majority of the cases were of the bubonic or septicæmic type, but a few patches of primary pneumonic cases occurred. In one of these the medical department lost a European surgeon and two African nurses, all infected from the same patient.

A League of Nations Study Tour.—In May the party of medical men organised by the League of Nations to take part in a tour of the West African colonies arrived in Lagos. Belgium, France, Spain, Portugal, Guatemala, South Africa, and Britain appointed medical men to take part in it. Sir Edward Thornton, who was appointed by the South African Government to coöperate, at the request of the Nigerian Government and with the permission of the Secretary of State and the South African Government, revisited Nigeria to examine the plague situation and to report on the most effective methods of dealing with it. As a result of his report, a special plague staff has been appointed to work under the control of Dr. W. Allan, senior officer of the sanitary branch of the medical department. A special R.A.M.C. staff, consisting of two majors and two captains, has been brought out to Nigeria, and the European sanitary inspection staff has been increased by 32 R.A.M.C. non-commissioned officers and privates. These are all employed in the anti-plague measures now being carried out in Lagos and Ijebu Province.

Vaccination continues to be actively pushed as a preventive against small-pox. The percentage of successful vaccinations is about 64. Quinine as a prophylactic against malaria has been distributed, particularly in the central province. The work on the investigation of the tsetse-fly and trypanosomiasis has continued throughout the year in the northern provinces. The centre of operations is at Sherifuri, in Kano Province. In addition to clearing of bush and thickets near pools and along the banks of rivers, experiments in late burning of the bush were carried out. As the effect of the first experiment in late bush burning on the prevalence of the fly was inconclusive, further experiments will be carried out next dry season.

The population of Nigeria (including the mandated area of the Cameroons), according to the latest returns, is 18,502,322 larger than that of any British dependency except India. There are about 4000 Europeans temporarily resident in Nigeria, chiefly in the employ of the Government and of mercantile and mining companies. The country is not suited for European settlement. Of the native inhabitants the greater number are of pure negro race, but in the north there are Berber and negroid tribes. The area of Nigeria is approximately 367,837 square miles. This includes the mandated portion of the Cameroons (31,150 square miles).

BITE OF A MADD DOG.

AN ancient recipe against rabies, dating probably from the beginning of the eighteenth century, is that of a certain Mr. John Barnardiston. It has been preserved among some 70 old manuscripts in the library of the Royal College of Surgeons of England, of which many were sent at different times to the College authorities by lay wellwishers anxious to impart to the professional mind useful information that might have escaped its notice. "You are to take six ounces

of rew," says Mr. Barnardiston, "four of garlic, four of mithrydate or treacle, four of scraped pewter or block tin; you are to boil these for the space of an hour in a closed pot, and give luke warm eight or nine spoonfuls to a man or woeman, in the morning fasting, 15 to a horse or cow, three to a sheep, and foure to a dogg. If any wound lay some of the dreggs to it, and 'twill heale it. Give it thre mornings following and then intermit thre, and so from thre to thre, till you have given it nine times."

The number nine strikes the note of magic, and this is emphasised in the next sentence: "If you have any faith in Charms the following words wrott on a peece of Cheese, and given the Dogg that's bitten I am told, has done wonderful cures.

Alnis, Alnis, Apelbusque
Arribas, Arribas, Apelbeseque
or
Carnis Darnis Farnis
Farnis Darnis Carnis.

"I depend upon none of these fooleries," adds the writer, doubtless in deference to the rationalism of his times, "but the first if timely given to my own knowledge is a certain cure." Mr. Barnardiston may be imagined as a kind of Will Wimble, writing to a patron, a second Sir Roger de Coverley, to whom he is perhaps related. "Pray, Sr, remember poore Pompey be sent to your cosen . . . who promised me he'd take care the Fellow I spake to should make him." The last phrase suggests, however, that Pompey is not a dog, but an inanimate object. "My service attends all the good Family," ends the writer.

The mystery of hydrophobia continued to puzzle the eighteenth century to the last. Charms were perhaps abandoned towards its close, but magic was still resorted to in domestic pharmacology. In the chapbook "A Thousand Notable Things, disclosed from the Secrets of Nature and Art, practicable, profitable, and of great advantage," which was published as late as 1791, we are gravely informed that "Hens Dung mixed with Meat that is given to be eaten of Mad Dogs, will take away their Madness from them (as it is thought)."

INFAMOUS CONDUCT.[1]

THE hope of the author is that the publication of an array of startling facts may bring about a reformation of the terms of censure passed by the General Medical Council upon transgressors, and the title which he has chosen puts him in a favourable position as a critic, for nobody defends that particular phrase in the Medical Acts, while very few persons have taken the trouble to find out how it got there. The story consists of a long series of episodes, any one of which may have occurred in the conduct of one medical practice, but few of which are likely to occur with any frequency in the practice of one man—the lamentable consequences which, following an unbroken sequence of disasters, form a category accordingly which is highly improbable. To use the events of such a peculiar medical career as an argument for "the reform of arbitrary rules and regulations relating to medical practice" is not logical; further, to make the argument for reform forcible the reiteration of misunderstanding and tragedy has turned what with due sense of proportion would have been a pathetic story into a wearisome one. The arrangement of the catastrophes in order to accentuate the drawn-out tragedy is so monotonous as to prevent all illusion that we are being presented with a picture of life, even though we may be familiar with the fact that any of the events might happen. The book is sad, earnest, and well-written, but not likely to stir unconvinced readers to agitate for reforms.

WELFARE OF MINERS.

IN the Northumbrian coalfield the Ashington Coal Company holds a premier place both by its size and by its reputation for efficiency combined with genuine care for the well-being of its 10,000 employees. The plant is up to date; underground roads are well kept and well supported, electrical coal-cutting is extensively practised, the screening apparatus is of the best, and the coal is sent in 20-ton wagons to the neighbouring port of Blyth. Ashington itself, a town of some 30,000 inhabitants, does not differ notably from any other mining town in the north of England, but three miles away, at Lynemouth, the company has built a model village, laid out by the seaside and comparing well with anything built in the newer coalfields. Many of the houses are being purchased by the tenants under a 15-year rent-purchase scheme. By arrangement with the Miners' Welfare Fund, pithead baths have been installed at two of the collieries of the group, the money required being advanced in the first place by the company. The baths are fairly well used, though there is some conservatism to contend with. The same conservatism has shown itself in connexion with the housing scheme at Lynemouth, where it was necessary to instal the old-fashioned wasteful open r instead of modern stoves. The Ashington Coal Co has, of course, been involved with all the other c companies in the labour disputes of recent years. is a fair surmise that if all collieries had been as compe and as humanely managed the position of the coal ind to-day would be very different.

[1] Infamous Conduct. By "Medicus." London: Henry Walker, John-street, Adelphi. Pp. 285. 6s.

GOITRE AMONG MANCHESTER CHILDREN

FURTHER investigation into the incidence of goitre a elementary school-children is recorded by Dr. O Taylor in the latest annual report of the school m officer for Manchester. The number of children exa was 13,578 (6396 males and 7182 females), and all en ments of the thyroid were included, whether slight apparent on inspection) or considerable. No line drawn between pathological and physiological enlarge The distribution of goitre was found to vary wit nature of the superficial deposit over the triassic marl sandstone on which Manchester lies. The endemicit found highest where the surface deposit is largely clay (pe age incidence 8·8 in boys and 11·3 in girls), and lowest the surface is glacial sand (3·7 in boys and 5·5 in It was noticed that whilst many Jewish children att the school clinics for various ailments, none attend account of goitre. Among the Jews 1675 boys and 180 were examined. Enlargement of the thyroid glan found in 0·4 per cent. of the boys and 1·2 per cent. girls. None of these 3483 children were more than sl affected. In one school, where 95 per cent. of the and 80 per cent. of the girls were Jewish, two boy nine girls of Gentile stock were found to show enlarg of the thyroid and only one Jewess exhibited any si goitre. In another school largely attended by J children ten cases of thyroid hypertrophy were found a the Gentiles but none among the Jews. "It seems c says Dr. Taylor, "that the endemicity among the J children is low when compared with the prevalence a Gentiles living in the same neighbourhood attendin same schools and drinking the same water. Many Jewish children in Manchester are of Russian origin, an eat rye bread of a dark coarse texture. It appears, mor that they eat more fish and poultry but less beef than Gentile neighbours. The more indigestible pork eschew on religious grounds. The pregnant Jewess i cared for. Alcohol is not allowed, nor is she suppos engage in outdoor employment from the beginni pregnancy till the completion of lactation. As a ru Jewish child is breast fed."

ESPERANTO AND MEDICINE.

AT the official Esperanto Congress which has just its session in Danzig, reference was made to medical this language. There are some 700 medical men distr through 26 countries who use the language and who su a well-printed Esperanto medical magazine, the *Int Medicina Revuo*. During the proceedings of the Co it was stated that the Medical Academy of Toky unanimously adopted Esperanto as the official langu which a number of monographs by professors Pathological Institute of the Imperial University of have already been printed. Some of these works, as reprints from the *Japanese Journal of Dermatolo Urology*, can be seen at the offices of the British Esp Association, 142, High Holborn, London, W.C. 1. terms are already to be found in the larger Esp dictionaries, but for the use of doctors an official medical words is being compiled and published *Internacia Medicina Revuo*, while a list of drugs, co from 16 different pharmacopœias, with a common Esp translation, has been published in a report of a comm on pharmacological nomenclature. In a note in *Intern Language* on the use of the microphone to facilita translation of speeches at international congresses, a co language such as Esperanto is advocated, and in th nexion it is interesting to see that in Europe, Asia, Au and America there are 30 or more radio stations re broadcasting Esperanto lessons or talks.

HOSPITAL COÖRDINATION AT SHEFFIELD.—A advisory committee has met to report on hospital co tion between Sheffield, Bakewell, Barnsley, Don Denaby, Mexborough, and Worksop.

MANCHESTER BABIES HOSPITAL.—The incre the number of beds has, says the annual report, neces a corresponding increase in the work of the doctors a staff, and to meet this new appointments have been A junior resident medical officer, a second masseus a biochemist have been appointed.

THE LANCET

o. 5425 LONDON, SATURDAY, AUGUST 20, 1927. CCXIII.

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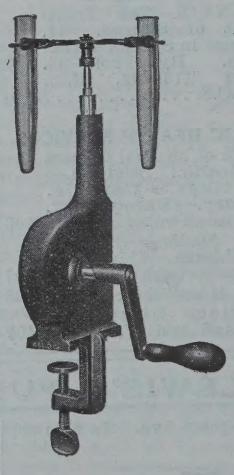

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An Address

ON THE TREATMENT OF GENITAL TUBERCULOSIS IN THE MALE.

Read in Substance at the Third Congress of the International Society of Urology Meeting in Brussels, August, 1927,

BY KENNETH M. WALKER, F.R.C.S. ENG.,

SURGEON IN CHARGE OF THE GENITO-URINARY DEPT., ROYAL SOUTHERN HOSPITAL, LONDON; SURGEON TO ST. PAUL'S HOSPITAL.

THE surgical treatment of tuberculosis, if it is to be logical, must be based on a knowledge of the pathology of the disease and of the manner in which various organs are infected. Unfortunately, in the case of tuberculosis of the genital tract this knowledge is lacking. Doubt still exists as to whether the epididymis or the seminal vesicle is the first to be infected, and as to whether the spread is an ascending one from epididymis to prostate or a descending one from prostate to epididymis. Both schools of thought have their adherents, and, in spite of all the investigations carried out to settle the question, no final decision has been reached. This absence of exact pathological knowledge of the disease is reflected in the confusion that exists in our surgical treatment. Whilst some authorities confine surgical intervention to such minor proceedings as the opening of abscesses or the carrying out of an epididymectomy, others believe that as the primary lesion is in the prostate or vesicles and not in the testicle the logical line of treatment lies in removal of the vesicle in addition to the epididymis. It is impossible, therefore, to discuss the surgery of genital tuberculosis without first referring to its pathology.

ASCENDING AND DESCENDING THEORIES.

The view that genital tuberculosis is an infection which appears first in the epididymis and thence extends to the prostate and vesicles is based mainly on three sets of observations—namely, the frequency with which tuberculous epididymitis is found without there being any clinical signs of a prostatic or vesicular lesion, the rarity of primary prostatitis or vesiculitis, and the failure on the part of such experimenters as Baumgarten and George Walker to produce in animals a descending infection. If we examine these foundations of belief we shall find that they are perhaps not so secure as they might at first sight appear. Personally, I feel that the failure on the part of clinicians to discover lesions of the prostate or vesicles in cases of tuberculous epididymitis is due to the fact that tuberculosis, when it affects these structures, gives very little evidence of its existence. At the most the patient complains of a mild frequency or irritation in micturition, and when examined per rectum nothing may be found in the early stages beyond a slight induration of the vesicles. For the same reason cases of tuberculous epididymitis or vesiculitis rarely consult a doctor until the appearance of a swelling of the testicle calls their attention to the fact that something is wrong. If, however, a very careful rectal examination be made in all cases of tuberculous epididymitis, and the smallest departure from the normal noted, whether it be in the shape of induration, tenderness, or pus in the expressed secretions, it will be found that very few cases can the prostate or vesicles be said to be normal. In a series of 30 cases so examined by me I found only three in which the prostate and the vesicles gave no evidence of the disease, although it must be confessed that frequently there existed no proof in the remaining cases that the prostate or vesicles were necessarily tuberculous, all that could be affirmed being that they were the seat of some inflammatory process. Mr. H. H. Young, in a larger series of 222 cases of genital tuberculosis, found only 37 in which no lesions of the prostate or vesicles could be detected, but in 47 cases he found that these structures were implicated alone. Keyes goes so far as to state that in every case of tuberculous epididymitis examined by him during the last ten years he has been able to find some indications of a pathological condition of the prostate.

Post-mortem observations are unfortunately of little assistance in helping us to a decision as to the spread of genital tuberculosis, first on account of the fact that in the post-mortem room only advanced stages of the disease are seen; and second, because in the opinion of most pathologists it is impossible to deduce the direction of spread by noting the apparent age of different foci. All that the post-mortem room can teach us with any degree of certainty is that in the vast majority of cases of genital tuberculosis the whole of the genital tract is invaded.

ANIMAL EXPERIMENTS.

The third foundation of the belief that genital tuberculosis is an ascending infection is the experimental work done by Baumgarten and, later, by George Walker. These investigators found that although it was easy to obtain secondary infection of the prostate and vesicles after inoculation of the epididymis of a rabbit with an emulsion of tubercle bacilli, it was difficult or impossible to bring about a spread in the opposite direction by inoculation of the posterior urethra or walls of the bladder. In a series of 20 rabbits whose bladders were inoculated with tubercle bacilli by Walker there were only two cases in which the epididymis subsequently became tuberculous, and he puts forward the view that in these two animals the infection probably took place through the blood stream rather than along the vas.

In 1912 I repeated Baumgarten's experiment, but, before placing tubercle bacilli in the urethra, took the precaution of subjecting the right testicle to a certain amount of trauma by exposing it and squeezing it. The history of the rabbit was as follows: two days after inoculation of the urethra with tubercle bacilli a hydrocele appeared on the damaged side, the scrotum became red and œdematous, and the whole testicle felt large and tender. The maximum size was attained at the end of four days. After this there was a gradual diminution in the size of the testicle, and the hydrocele subsided. At the end of a fortnight the rabbit was seen to be suffering from an undeniable tuberculous urethritis. Small white tubercles appeared on the glans penis in the region of the meatus, and about the same time the epididymis on the side which had been damaged again became enlarged, hard, and nodular to the touch. At the end of six weeks the epididymis felt still more nodular and had increased in size. As the animal was beginning to lose flesh it was decided to kill it in order that the condition might not be complicated by the addition of generalised tubercle. At the post-mortem it was found that this undesirable complication had not been entirely averted, for five or six small tubercles were seen on the peritoneum. However, in the region of the damaged testicle massive lesions were present, and there was a marked thickening of the vas on this side. The distribution of the lesions in the vas was the same as that which is usually found in the human subjects—namely, marked thickening of the testicular and prostatic extremities with very little thickening of the intervening portion. There was also obvious disease of the vesicle on the same side, and ulceration of the urethra and neck of the bladder. I am aware that the weak point of this experiment is that there is no proof that the infection of the testicle occurred via the cord and not via the blood stream, but the massive infiltration of the epididymis commencing a few days after inoculation, and long before the rabbit had begun to lose weight, was certainly suggestive of a direct extension rather than of a late blood infection.

Baumgarten put forward the view that the reason why descending tuberculosis did not occur was that

the tubercle bacillus was a non-motile organism and consequently had no power of travelling down the cord against the current of testicular lymphatic secretions. But such an objection would apply equally to the gonococcus and to other organisms that are known to take such a path. Indeed, it is difficult to understand, in view of the close resemblance between chronic gonococcal epididymitis and tuberculosis, why a different pathology has been accorded to the two infections. Why is it that in one case the organism is supposed to reach the epididymis through the cord and in the other through the blood stream? Is it not a well-known fact that blood infections of the testicle—e.g., in syphilis, mumps, and typhoid—almost invariably affect the body of the testis rather than the epididymis? All observers now agree that it is in the lower pole of the epididymis that tuberculous deposits first appear, and this is the portion of the epididymis that would first be reached by any organisms descending the cord.

SURGICAL TREATMENT OF GENITAL TUBERCULOSIS.

The operative treatment of genital tuberculosis ranges from purely palliative measures, such as the opening of abscesses and the scraping of sinuses, to such radical procedures as complete removal of the seminal tract. Of some of the operations that have been practised in the past, such as bilateral castration, it should be unnecessary to speak, since they have been abandoned by all reputable surgeons. Nevertheless I have seen patients during the last ten years who have been treated by bilateral orchidectomy with the result that to their physical disabilities has been added a serious neurosis directly resulting from the loss of both testicles. Total removal of the testicle, even on one side, should never be carried out unless the body of the testis has been invaded to such an extent that any attempt to save it is out of the question. Fortunately, the testis shows considerable resistance to tuberculous invasion so that it is generally only in advanced cases that it becomes affected. Young states that the testis was only involved in 8·3 per cent. of his cases, although it must be admitted that Barney gives a considerably higher figure. Unnecessary sacrifice of a testis not only deprives the patient of the benefit of its internal secretion, but inflicts on him a severe psychological shock. The removal of an infected epididymis, on the other hand, is accompanied by very little psychological shock since the patient feels that the testicle is still present and can face with equanimity the subsequent discovery of disease on the opposite side should this occur. This spread of tuberculosis to the opposite epididymis is, of course, a feature of the disease, and is in my opinion a strong argument in favour of the primary focus being situated in the centrally placed structures, the prostate, or vesicles. I can find no evidence in my own statistics, or in those of others, that orchidectomy offers any greater protection to the opposite testicle than does epididymectomy, and for this reason I prefer the latter operation in all cases except where the testis itself is extensively involved.

A second point on which many surgeons differ is as to the amount of vas that should be removed with the diseased epididymis. Whereas some content themselves with removal of the vas as far as the external ring, others advise opening the inguinal canal and removing as much of the vas as can be reached by this fresh exposure. If the vas is felt to be thickened, it is, of course, a wise proceeding to remove it with the epididymis, but in the majority of cases it will be found that this thickening only extends along a few inches of its length. As a result of examining a great number of cases, both in the operating theatre and the post-mortem room, I have found that the portion of vas which is most rarely affected is its middle third. Indeed the distribution of tuberculous infiltration along the vas is a matter of considerable interest not only to the surgeon but also to the pathologist. If one dissects out the genital system of a patient who has died of tuberculosis, and examines it microscopically by means of a series of transverse sections taken through various portions of the vas, one finds the following: Sections from the prostatic extremity show that the vas itself is comparatively healthy, but that it is surrounded by a thick shell of tuberculous tissue, due to infiltration of the lymphatics. As the testis is approached the lymphatic infiltration gradually ceases. A section from the distal end of the vas, near its termination in the epididymis, shows a converse condition. Here the disease has affected the mucosa of the vas, whereas the surrounding lymphatics give little or no evidence of any lesion. This distribution suggests that the disease is disseminated from the prostate by the lymphatics, and that having encountered in the epididymis a suitable soil in which to flourish, it produces a returning wave of infection in the vas, through the agency of the secretions. It is interesting to note that the microscopic examination of the genital tuberculosis experimentally produced in the rabbit by urethral inoculation and described above showed an exactly similar distribution, the prostatic extremity of the vas and the seminal vesicle on the diseased side being enclosed in a dense shell of tuberculous infiltration, whilst the inner coat of the vas appeared healthy. Apart, therefore, from other considerations, the distribution of the tuberculous tissues suggests the existence in these cases of two opposing waves of infection, a centrifugal and primary one, travelling from the prostate along the lymphatics, and a centripetal and secondary one, in the lumen of the vas, due to the flow of infected secretions from the diseased epididymis. (See figure.) The practical lesson to be learnt from these observations is that it is seldom necessary to attempt the removal of a great length of vas when performing epididymectomy.

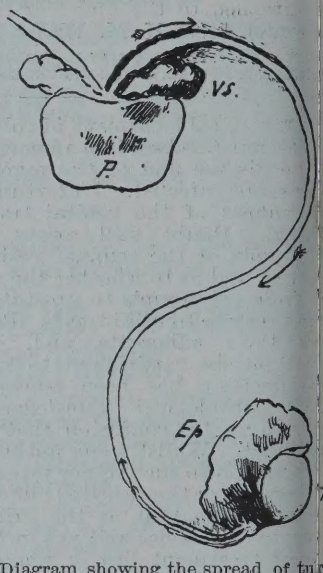

Diagram showing the spread of tuberculous infection from a deposit in the prostate. The position of the tuberculous infiltration is shown by the dark shading. At its proximal end the outer coats of the vas are mainly affected, and at its distal extremity the inner coat.

The arrows show the suggested waves of infection, a primary one from the prostate to the epididymis along the sheath of the vas, and a returning wave through the passage of infective material from the epididymis along the lumen of the vas.

Total Removal of the Seminal Tract.

It is obvious that to those surgeons who believe that the primary lesion of genital tuberculosis is centrally in the prostate and vesicles, no operative measure can be considered truly radical unless it includes within its scope the removal of the centrally placed structures. Acting on these principles Mr. H. H. Young, of Baltimore, has substituted for epididymectomy the operation of epididymo-vesiculectomy, or total excision of the tuberculous seminal tract. This operation, whatever its disadvantages is in my opinion based on a true conception of the pathology of the disease. If it is necessary to attempt to remove by the knife all infected tissues then Mr. Young's formidable operation should be done. His procedure is as follows. The prostate and vesicles are first exposed through the ordinary inverted "V" shaped perineal incision, used for perineal prostatectomy. The first steps of the operation

reed the same as for a perineal prostatectomy, but the later stages a fuller exposure of the seminal icles and the ampullæ of the vasa is required. These uctures are then freed from the base of the bladder dissection from above downwards until their ction with the upper portion of the prostate is ched. If the prostate is obviously affected it is removed by enucleation from within its capsules, the fascia, ampulla, seminal vesicles, and lateral es of the prostate taken away in one piece. The und is then partially closed, long clamps being attached to the upper divided ends of the vasa erentia for traction later. The patient is then ced on his back with legs separated and lidymectomy is carried out, the vasa deferentia g exposed up to the external ring. Then with an stant pulling on the clamp holding the divided tral end of the vasa, and the operator alternating h traction of the distal end, the intermediate portion the vas is freed from its adhesions and finally lsed. By this means a complete and radical noval of the entire seminal tract is effected with the eption of a few mm. of the terminal portion of the ulatory ducts. Mr. Young furnishes statistics of cases treated by his radical operation with only operative death, in spite of the fact that many of patients were in an advanced state of the disease some in addition handicapped by associated ons elsewhere in the body. He urges that the ration should be undertaken in all cases in which re is reason to believe that the vesicles or the state are involved in the tuberculous process, and siders that the only hope of radical cure and of pletely arresting the disease lies in this direction.

The operation of total excision of the seminal tract undoubtedly one of great severity. Not only does mean a difficult dissection of the perineum and the noval of vesicles that are generally closely adherent the bladder and peritoneum, but it entails a valescence that may by no means be without dent. In two out of the three cases in which I e performed Young's operation secondary morrhage has occurred from vessels lying high in the wound, and in one case the passage of us through the perineal wound suggested that in e of every effort to avoid injury to the rectum some ior damage had been inflicted. In this country ineal prostatectomy is rarely performed and for s reason, if excision of the vesicle and affected tion of the prostate is necessary in the treatment of ital tuberculosis, most operators will prefer the uinal approach. In this operation, after completing epididymectomy, the vas is exposed by an ique incision above Poupart's ligament, resembling t required for subperitoneal exposure of the ter. By stripping the peritoneum inwards and secting down to the pelvis, not only can the whole the vas be exposed, but also the vesicle, and the per half of the prostate. It is also possible to remove opposite vesicle through this incision and thereby inish the risk of extension of the disease to the aining epididymis. However, although to some rators this method of exposure seems preferable, re is the undoubted disadvantage that drainage ar less satisfactory than with the perineal route.

CONSIDERATION OF SURGICAL TREATMENT.

Having indicated the possible lines of surgical ervention it will be as well to consider their place the treatment of genital tuberculosis. Does the ration of epididymo-vesiculectomy offer good spects of eradicating the disease, and are its results ter than those obtained from less radical forms treatment?

Before attempting to answer these questions it is portant to remind ourselves that in the vast jority of cases genital tuberculosis is associated h active lesions elsewhere in the body, and ticularly in the urinary tract, and for this reason s impossible to deal with it as though it existed as an ated entity. Genital tuberculosis must be regarded a local manifestation of a general body condition, and this fact must never be lost sight of in any consideration of its pathology or its treatment. Cases of genito-urinary tuberculosis are now handed over to the surgeon, and it is right that this should be so, for surgery, by removing badly infected tissues, can do much to assist the body in its fight against the tuberculous invasion. But the successes of surgical intervention must not blind our eyes to the fundamental fact that the treatment of genital tuberculosis is a problem in immunity, and that rarely, if ever, can the knife completely extirpate the disease. However radical our operation, some focus must remain behind, either inside or outside the genito-urinary tract, from which new invasions may take place and fresh organs become infected. But fortunately for us, the mechanism of immunity in a patient suffering from genito-urinary tuberculosis, although impaired, is not disorganised, and the removal of the more grossly infected tissues is often sufficient to allow of its overcoming that which remains, so that the fact that it is impossible to remove all infected tissues does not mean that our operation because incomplete is useless. Every surgeon must have noted the improvement in the condition of the tuberculous prostate and vesicle that generally follows removal of the focus in the epididymis. Subsequent to epididymectomy the tuberculous deposits in the central structures become reduced in size and encapsulated with fibrous tissue. This is due both to a reduction in the amount of infection with which the body resistance is called upon to deal and also possibly to the cutting off of the flow of infecting material passing along the vas from the diseased epididymis. Even when the mode of life and environment of the patient are by no means ideal this regression of the lesions of the prostate and vesicles is generally noted, but it is, of course, much more marked if to the surgical intervention can be added general measures calculated to raise the body resistance. On *a-priori* grounds, therefore, such a serious operation as that of total excision of the seminal tract is not necessarily justified. Justification must come from the results rather than from any argument based on pathology. Does the radical operation offer the patient a better chance of cure and does it reduce the danger of extension of the disease to other portions of the genito-urinary tract? Although we find on following out the subsequent history of cases of genital tuberculosis that many of them eventually die of phthisis or of general miliary tuberculosis, death in a certain number of cases is the direct result of extension of the disease to the urinary tract. Indeed it may be said that apart from generalised tuberculosis the most distressing complication that is likely to arise in the course of genital tuberculosis is involvement of the bladder and kidneys. Does total excision of the seminal tract offer a patient better protection from such a complication than does epididymectomy, supplemented by general therapeutic measures? Unfortunately, it is difficult to obtain any figures that can assist us in coming to a decision on this point. Direct extension from the prostate and vesicles to the bladder may undoubtedly occur. It is also possible that in some cases infection may spread through the lymphatic network from these structures directly to the ureter and from there up to the kidneys. But although statistics can be found showing the percentage of cases of genital tuberculosis that subsequently give evidence of urinary lesions, it is impossible to exclude from these figures cases in which the renal focus has actually existed prior to the outbreak of the genital one. It is now recognised that a tuberculous focus in a kidney may for a long time remain latent, its presence only being made manifest when it has ulcerated through into a calyx and discharged tubercle bacilli and pus cells into the urine. That the renal focus has antedated rather than post-dated the genital tuberculosis would certainly appear to have been the case in many of the so-called examples of secondary extension to the urinary tract that have been brought to my notice. This difficulty of eliminating cases of latent

renal tuberculosis introduces so large an error into the interpretation of statistics that they become of very little value as a criterion of the comparative merits of total excision of the seminal tract, and of epididymectomy, in protecting the individual from the dangers of extension of the disease to the urinary tract However, it is only fair to add that a comparison of the figures furnished by H. H. Young, with those supplied by exponents of epididymectomy would appear to indicate that the radical operation diminishes, although it does not entirely eliminate, the risk of subsequent involvement of the urinary tract.

SUMMARY.

In the foregoing paper I have laid emphasis on the fact that although the treatment of genital tuberculosis now lies in the hands of the surgeon, the disease is not an isolated unit that can be dealt with entirely by operation, but that it must be regarded as a local manifestation of a general condition requiring the adoption of all these general and local measures that we know to be of value in raising the resistance of the patient against the tuberculous invasion. In discussing the operative treatment of genital tuberculosis I am of opinion that epididymectomy is the operation which is most generally useful. Vesiculectomy, although it is based on a correct understanding of the pathology of the disease, is, I believe, rarely necessary, since removal of the lesions in the testicles is usually followed by marked regression of those in the prostate and vesicles. This regression is materially assisted if to epididymectomy are added other methods of treatment—climatic, dietetic, and the use of heliotherapy, X rays, and tuberculin. If an improvement in the central lesions does not occur, then vesiculectomy and removal of grossly infected tissue in the prostate should be carried out as a secondary measure. In advanced cases of tuberculous vesiculitis and prostatitis, and where fistulous tracts exist, the radical operation should be performed as a primary measure. Possibly it may also be carried out in a few cases of less advanced disease where the mode of life and environment of the patient is so unfavourable that from the outset he is severely handicapped in the fight against the tuberculous invasion.

STREPTOCOCCAL PITYRIASIS.[1]

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THERE is hardly any field in dermatology so ill-defined and so variously interpreted as the eruptions which we group together under the term *Pityriasis simplex*, or as, following Unna, this clinical picture is generally called, eczema seborrhœicum.

Now it is not my intention on this occasion to involve myself in the many different aspects of this complicated problem, but I hope with the present exposition to make a modest contribution towards its elucidation. My investigations add nothing new to our knowledge of genuine eczema seborrhœicum itself; they merely set out to prove that certain desquamating rashes, which have hitherto been classed as eczema seborrhœicum, should be excluded from this category and grouped together as a special and independent clinical entity.

The form of disease whose distinctive character I am concerned with I have called *Pityriasis streptogenes*, because the formation of scales is its most striking sign, and in view of the fact that streptococci are probably the cause of the disease. Earlier authors have already attempted to distinguish some of the cases comprised by this clinical expression from seborrhœal eczema. Thus in his well-known work, "Les Maladies Desquamatives," Sabouraud discusses certain desquamating eruptions which appear principally on t face in children and which often occur epidemical They frequently develop after impetigo, for wh reason Sabouraud regards them as a mild form of t disease. In England Adamson separated th desquamating affections occurring in the train impetigo under the heading "chronic impetigo," a they are mentioned in Sequeira's "Skin Disease and a few other places. Most authors, however, p this clinical picture in a higher category with seb rhœal eczema.

The clinical and bacteriological investigations wh I am about to relate prove, in the first place, t justification for this exclusion from seborrhœal eczer which Sabouraud, Adamson, and a few others ha attempted; but they also show that the disease is more comprehensive and far more general than o would think from the earlier observations.

METHOD OF CULTIVATING STREPTOCOCCI FROM THE SKIN.

The basis on which I propose to establish pityria streptogenes as an independent disease of the sk is a special method of cultivating streptococci from t skin. The method has previously been published, that I shall content myself with stating its princip

The method depends upon the observation that t well-known dye, crystal violet, prevents the growth the staphylococcus in such weak concentrations as not affect that of the streptococcus. It is theref possible, by adding a suitable quantity of crys violet to the various nutritive media, to get a p culture of streptococcus when this organism is mix with staphylococcus in the original material. As well known, it is impossible to demonstrate t presence of streptococci by spreading material fr the skin on the ordinary solid media, because a numb of staphylococci are always found there, wh luxuriant colonies entirely submerge the streptoco with the ordinary technique. For detecting th bacteria in the skin Sabouraud's well-known method cultivation in Pasteur pipettes has therefore hithe been employed, by which they can be obtained pure culture as facultative anaerobes from the draw out end of the pipette, while the staphylococci o grow in the upper layer of the broth.

Sabouraud's method has proved to be extrem sensitive when it is merely a question of the *demonst tion* of the presence of streptococci; but it has important defect in that it tells us nothing about t amount of streptococci in the material examined. a matter of fact, a single streptococcus, perhaps pres by chance, will give the same result with this cult method as when a number of them are present. harmony with this Frédéric and Flehme have obtain a positive result from normal skin in about 15 per ce of all cases examined, and from diseased skin a s greater number of times, so that the pipette meth has a very restricted application where it is a quest of demonstrating the significance of streptococci the cause of a skin disease.

The new method, however, with the addition crystal violet has an advantage, in that it permits cultivation on *solid media*, whereby one can form good idea from the quantity of colonies of the numb of streptococci in the original material. The mediu I have used is 10 per cent. blood-agar, to which crys violet in a concentration of 1 : 100,000 was add In nine out of ten cases any streptococci pres will grow on this medium, while staphylococci entirely or almost entirely inhibited, both when t culture is made from fluid material and from sca which are sprinkled over the surface of the agar. T addition of blood favours the growth of the streptoco and also ensures that the small, rather inconspicuo colonies are easily recognised, for a distinct hæmoly zone nearly always appears around them.

ÆTIOLOGICAL SIGNIFICANCE OF STREPTOCOCCI IN SKIN DISEASE.

I shall not on this occasion enter further into t interesting results which this method has yielded h

[1] The Annual Oration delivered before St. John's Hospital Dermatological Society on June 22nd.

petigo and various other skin diseases. These sults, which I have previously reported, have com-tely confirmed the now generally accepted view at streptococci are the cause of impetigo vulgaris. ltures on crystal violet agar in these cases almost stantly show myriads of streptococci both from ent and from old eruptions. On the other hand, accord with the general view, it has turned out that petigo contagiosa neonatorum is unlikely to be due streptococci; for although they are very often sent when cultivations are made in a pipette—ich has given rise to some doubt about the ætiology growth on crystal violet agar shows that only a few ganisms are present in these cases, presenting a ture quite different in appearance from that of petigo vulgaris. A similar result was obtained with so-called impetigo bullosa in adults, where lassohn's and Lewandowsky's assumption that phylococcus is the cause has been fully confirmed. e streptococci which can so frequently be detected the pipette method in normal skin and in definitely n-streptococcic skin diseases are also found to be sent in small numbers on cultivation on crystal let agar, for they only produce a few colonies.

The impression of numbers given by this method is appears to have a certain value when it is a estion of deciding the ætiological significance of ptococci in any skin disease, because, as stated, saprophytic streptococci are usually present in ling numbers, while the pathogenic ones produce abundant crop of colonies. It is in the light of se facts that the results I am going to communicate uld be interpreted.

A Typical Case.

Before relating the cultural experiments I should e to give a short clinical description of the disease ich I have defined by the term pityriasis strepto-ges, and as the basis of this I will begin by citing typical, uncomplicated case. It was a boy of 12 years, whose face numerous isolated desquamating spots present. They are of widely different sizes, from nute dots to the size of a coin, and the shape is gular. The elements are pink in colour, hardly ltrated at all, and they are only just raised above level of the surrounding skin. The desquamation very characteristic, the scales occurring as small aked lamellæ, giving the surface the appearance of oughed field in miniature. The characters just ntioned, with which all will be familiar from daily ctice, will alone be sufficient to distinguish the ease from true seborrhœal eczema, with which it is ften confused. But there are other symptoms which entuate the difference. Thus it is a rarity to see extensive scale formation in the scalp in these ients, while seborrhœal eczema nearly always inates and is most widely distributed in this ation. (Fig 1.)

Cultivation Experiments.

In many cases with a typical appearance such as I ve described I have made cultivations on the stal violet agar referred to, simply by scraping the face with a sterile sharp spoon and sprinkling the les on a Petri plate. It was found that this lesion ctically always harbours streptococci, and in the jority of cases in great abundance. Thus a colony requently seen to spring from almost every tiny le scattered about the plate. In cultivations on inary blood-agar from these eruptions one hardly r sees the streptococci, because their growth is pletely submerged by the staphylococcus colonies ing forth from each small scale. Only by the lition of crystal violet can the true bacteriological ure of the disease be recognised.

The cultural result described is wholly different n what is obtained in cultures from psoriasis, gworm, pityriasis rosea, and similar diseases, which rphologically have some likeness to pityriasis ptogenes. One now and then, of course, does find ptococci in these lesions, but there are never more n a few isolated colonies, just like what is obtained from the normal skin. In the drier forms of true seborrhœal eczema, also, only occasional colonies are obtained, but in the weeping forms streptococci may be present in larger numbers. In the latter instance it is undoubtedly a question of a secondary infection —of the production of impetigo so frequently seen in this disease.

The cultivation experiments therefore are greatly in favour of streptococci being the cause of the form of pityriasis described above. But from these results alone I would not venture to propose the name pityriasis

FIG. 1.

Typical case of streptococcal pityriasis with lesion starting at angle of mouth.

streptogenes for this lesion if the clinical facts did not point so definitely in the same direction. As I have already stated, Sabouraud, Adamson, and others have observed that these cases can develop from impetigo, which suggests a close ætiological relationship with this disease. One often sees, moreover, that the superficial scaly spots become the seat of impetigo, either throughout their extent or at isolated points.

Clinical Characteristics.

A point observed in many of these cases, and one which supports the view that streptococci are the cause, is their tendency to start at the angles of the mouth or the nostrils. Experience shows that these regions are haunts of streptococci, for they constitute a kind of advance station for them on their way to the skin. I will now show you one of these typical affections starting from the angle of the mouth. This clinical picture will, of course, be quite familiar to you all in your daily practice.

As I have said, the typical forms of the disease occur on the face, especially in children. But since the discovery of a method for diagnosing this complaint bacteriologically with a fair degree of certainty —namely, the cultural method described—it has been found that it also occurs in other localities in the form of a less typical eruption, and much more commonly than was previously believed. The cultural demonstration of streptococci has in a way opened our eyes to the true nature of a number of hitherto obscure desquamating eruptions, because pityriasis strepto-

genes has been borne in mind in considering these affections, and it has often been possible to detect one or more characteristics of its clinical appearance.

The affection can occur in the scalp, although somewhat rarely, where it produces spots similar to those on the face. The diagnosis can only be made clinically when spots are also present on the face,

FIG. 2.

Streptococcal pityriasis irritated by the use of cold cream.

which is commonly the case. Their ætiological affinity is then clear from their identical appearance and their similar cultural results. Sometimes the hair falls out, and there is then a surprising resemblance to ringworm, from which it can only be distinguished by the absence of the fungus and the presence of streptococci in large numbers.

The disease is common on the neck, usually commencing with an extensive eruption on the face which sends offshoots downwards. These extensions frequently exhibit one of the most characteristic features of the disease—namely, its tendency to be irritated by sunlight. The area of skin shaded by the chin is often partially or completely protected. Its relation to light, which was long ago pointed out by Rasch, has great practical importance, because many cases of so-called eczema solare, especially when it is confined to the face, are really chronic cases of pityriasis streptogenes which are irritated by the light and become eczematous every summer. Perhaps the hypersensitiveness to light is due to the fact that the formation of pigment is partly or entirely suspended in the affected parts.

The lesion is also irritated by other factors than light—thus by ordinary washing with soap, by most of the soft salves like cold cream, vaseline, and especially lanoline; further by many other remedies, notably tincture of iodine and mercury. Of internal remedies bromine, at any rate, and probably also iodine can aggravate the disease. Arsenic and quinine may also undoubtedly cause the lesion to flare up. (Fig. 2.)

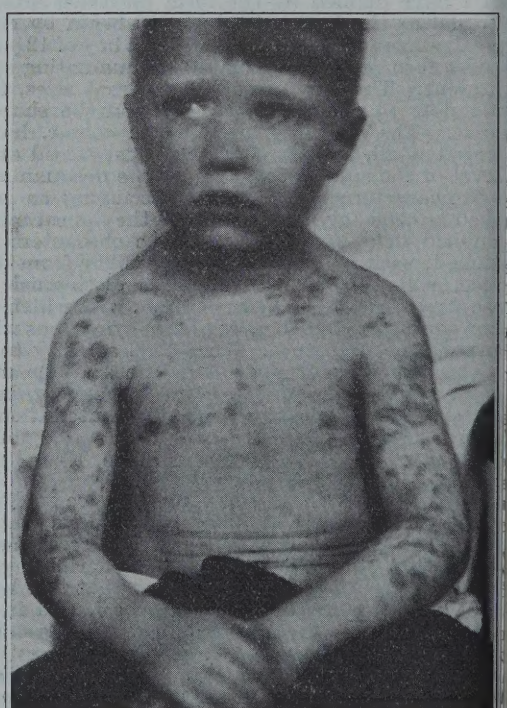
The eruption on the body is seldom the primary seat of the affection. I have, however, seen several cases who in addition to the typical eruption on the face also had a number of similar spots on the b and extremities. The cultural finding—masses streptococci—was, moreover, in conformity. W the disease occurs on the body it has, unlike seborrh eczema, a predilection for the lateral parts, a f which Sabouraud has previously pointed out. (Fig.

The complaint is rather more common on extremities, especially on the arms, where the sp however, are less typical in appearance than on face. When the disease is also present here, whic often the case, not only the similar cultural findi but also the clinical resemblance, which is undenia as soon as one thinks of the association, will disp their identical nature. The arms are particula affected in women.

On the hands the disease may greatly resem eczematous ringworm. As these cases are usu cured by antimycotic remedies they have no doub *ex jurantibus*—often been regarded as myco although the fungi were not found. But since it been shown that the genuine mycotic eczemas which the fungus can be detected do not harb streptococci while morphologically similar cases which the fungi cannot be found commonly do harb them in large numbers, we must certainly assume t streptococci are the cause of at least some of the c of ringworm-like eczema of the hands where the fun cannot be demonstrated. Fig. 4 illustrates suc case. The resemblance to mycotic eczema is obvio but besides the cultural result—numerous streptoco no fungus—the laminated streaky desquamat denotes its affinity with pityriasis streptoge (Fig. 4.)

The cases of pityriasis streptogenes which I h described so far had developed without anteced

FIG. 3.

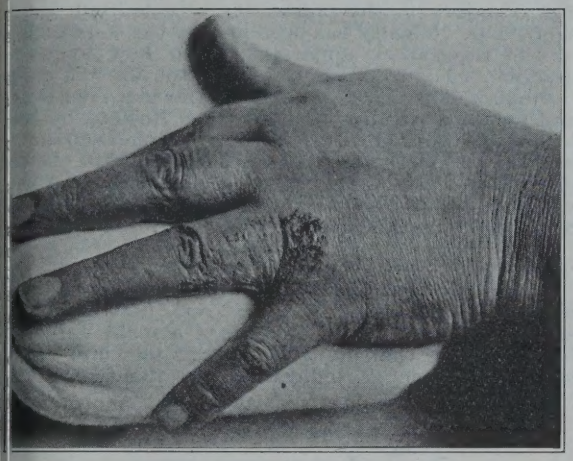


Streptococcal pityriasis involving face, body, and arms

impetigo. Those which arise after impetigo, howe exactly resemble the primary ones in appeara course, and bacteriological findings, and they thus be regarded as identical. Pityriasis streptog occurs after acute irritation of the skin as well as a impetigo—for example, following treatment scabies—and this clinical picture has long been re nised as due to streptococci by Sabouraud and

en termed by him "strepto-épidermite chronique." thyosis is frequently complicated by pityriasis eptogenes; but the spots cannot be recognised on previously scaly skin until they become eczematous. rther, there is much evidence in support of the w that the disease may complicate certain cases of ificial dermatitis following internal medication. us salvarsan and mercury dermatitis are remarkly frequently observed in patients suffering from

FIG. 4.



treptococcal pityriasis of the hand resembling eczematous ringworm.

yriasis streptogenes. Finally, the affection can doubtedly complicate true seborrhœal eczema, t the conditions in this case are so complex that ther investigation is needed.

Up to the present I have kept to the characteristic pearance, localisation, and bacteriological findings the individual elements in my attempt to establish yriasis streptogenes as an independent disease tinct from seborrhœal eczema. Although the ference between the clinical pictures of these two ections in all the points alluded to appears to me so eat that in itself it warrants us in drawing the tinction, I will, nevertheless, for the sake of completeness, mention certain discrepancies concerning its currence and course.

While true seborrhœal eczema in its typical forms curs principally in early childhood, at puberty, and the two following decades, pityriasis streptogenes ects chiefly school-children of from 6–14 years of e. But many cases also occur in adults, much ore commonly in women than in men. That, on the hole, it is a very common disease follows from the ures of the Polyclinic of the State Hospital in penhagen, where among 4700 patients in 1926 ffering from skin and venereal diseases there were 2 cases of pityriasis streptogenes. Of these 16 were n, 44 women, and 92 children. The corresponding ures for seborrhœal eczema were 72 men, 100 women, d 34 children. The relative distribution of the two eases according to sex and age is therefore rather ferent also.

An interesting point which comes specially into ominence because school-children are so often ected is the undoubted infectious nature of pityriasis reptogenes. Through the courtesy of various school ctors I have had the opportunity of seeing how hole classes can be attacked almost at the same time. he fairly common eruption on the arms in women is o often found in mothers of children with extensive yriasis streptogenes.

TREATMENT.

The treatment of the complaint is very successful. he rash frequently disappears on applying pure zinc tment if all external irritation, especially washing th soap, is avoided; but zinc ointment containing 1 to 2 per cent. coal-tar, or 2 per 1000 antrarobin, is the most certain remedy.

The clinical picture of pityriasis streptogenes which I have attempted to describe seems to me to be so typical, taken in connexion with the bacteriological finding, as to justify its separation as a clinical entity. The reason I have proposed the name pityriasis streptogenes in place of Sabouraud's "impetigo sicca" or Adamson's "chronic impetigo" is that the disease is secondary to impetigo in a small number of cases only, while the majority—all those cases classed by most people as seborrhœal eczema—occur primarily as a pityriasis and preserve this appearance in their future course.

Whether the streptococci found in pityriasis are impetigo streptococci whose virulence is merely diminished, or whether they are a special type, future serological research must decide. But, in any case, indications are that these streptococci are the cause of the disease. Even if the relationship to impetigo proves to be very close—as, for example, exists between impetigo and echthyma—we shall have just as much right to retain pityriasis streptogenes as a third form as we have to distinguish between the two clinical forms of streptococcal infection mentioned. From a purely clinical standpoint it is still further removed from impetigo and echthyma than these two diseases are from one another.

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A METHOD FOR THE INDUCTION OF RESPIRATION IN THE NEW-BORN.

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IT is only during the past few years that we have begun to recognise that vigorous and energetic methods of treatment of an infant born in a state of suspended animation are a mistake. These methods tend to increase the degree of shock and intracranial injury which occurs after a prolonged and difficult labour. Artificial respiration as practised by Schultz and others must have helped to some extent to maintain the stillbirth rate rather than to diminish it.

We should endeavour to render the postnatal conditions as nearly similar as possible to the antenatal, at least until the infant has become acclimatised to its new surroundings. The fœtus in the uterus lies in a water bath at an even temperature, it is protected from jolts and jars, and it receives a regular amount of oxygen and nutriment by means of the cord and placenta. Birth means a severe strain on the infant in some cases, and time is required to overcome the resulting shock. The infant is suddenly thrust into surroundings where the temperature is lower than that of the uterus. That the child loses a considerable amount of heat has been already demonstrated by a series of observations which I published in 1925.[1] When shock and loss of heat are combined with the ordinary drastic methods of artificial respiration it is not surprising that the results in some cases are disastrous. Warm baths may restore animation by the application of heat but they lead to rapid radiation from the skin on exposure consequent upon removal of the natural oily protection—i.e., the vernix caseosa. The method of placing the infant imme-

[1] Proceedings of the Royal Society of Medicine, 1925, vol. xviii.

diately after birth in a warmed blanket compares most favourably with a hot bath. Subsequent cleansing of the skin for several days with olive oil instead of soap and water prevents loss of heat and loss of weight. If the infant is suffering from cardiac shock there is nothing to be gained by trying to establish pulmonary respiration until the heart has begun to function again. Respiration occurs as the result of stimulation of the medulla by the reserve of CO_2 in the blood. If this reserve is lost by energetic movements as in artificial respiration pulmonary function fails to become established unless a fresh supply is forthcoming. Shock or white asphyxia in most cases follows undue intracranial pressure during birth or from interference with the placental circulation. Forceps applied to the extended head are liable to cause injury. This has been demonstrated by the research of Miss A. Baker in this unit. She found that if the head is not sufficiently flexed and the forceps applied obliquely there is danger of intracranial injury.

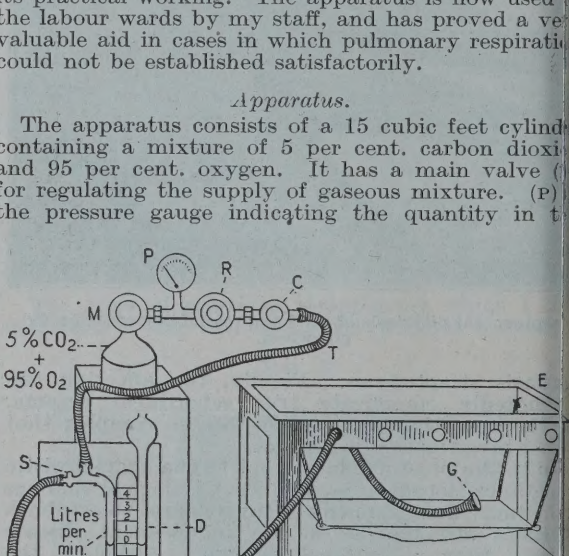
Treatment of White Asphyxia.

The most suitable treatment of an infant suffering from white asphyxia is as follows. The infant when born is wrapped in a warm towel or blanket. Its eyes are wiped and mucus is removed from the mouth and nose. When the cord is severed the child is transferred to a cot well warmed with blankets and hot-water bottles. If the air passages are still blocked by mucus a soft rubber catheter is used to suck it out. This catheter has a glass inlet and mouthpiece by means of which the mucus can be observed in the tube and its risk to the operator avoided. If the heart is only faintly beating stimulants, such as camphor ℥ii., or strychnine, are given hypodermically. Gentle massage of the heart is also employed. The mask of the apparatus about to be described is applied to the infant's face, and a gas mixture of 95 per cent. oxygen and 5 per cent. carbon dioxide is given at very low pressure. The mask is applied and withdrawn at the rate of about 16 times a minute. As soon as respiration is established the mask is left on the pillow near the mouth for about one minute. The cylinder is changed and pure oxygen is given for several minutes. The administration can be carried out in a cot with a curtain or in a special wood-and-glass "breathing box." The latter is not essential but it is desirable, as it ensures a warmed and even temperature (75° F. for the new-born). As soon as the infant breathes normally it is placed in its cot. It is subsequently cleaned with olive oil and dressed. Movements involving disturbance of the brain or spinal cord should be avoided. It is well to remember that infants born while the mother is under anæsthesia must take some time to revive as they themselves are under the influence of the drug. Also instead of precipitating delivery by means of forceps for fœtal distress it has been found by experience that the administration to the mother of cardiac stimulants at intervals during labour will do much to prevent the necessity for operative interference and the consequent shock during delivery. For some years I have been carrying out a series of observations upon the new-born, more especially with regard to the treatment of shock. I have given up the practice of artificial respiration except in those cases known as "blue asphyxia," in which there is cardiac function, but difficulty is experienced in starting pulmonary function. Gentle movements of the chest will do little harm, but these infants generally react quickly to the clearing out of the air passages. Although hot baths and artificial respiration have been given up in the cases of so-called "white asphyxia," it seemed to me that there was something wanting in more or less negative treatment. As the result of considerable research upon the cause of antenatal and neonatal deaths in the unit, we came to the conclusion that a supply of CO_2 to the infant would make up for its deficiency in the blood. It would also replace the old method of artificial respiration with its harmful effects in cases of intracranial injuries. I tried various devices but could not obtain a method free from ris Also, it was necessary to have a practical apparat at hand for all labour cases, and one which could worked by any member of the staff.

Prof. Yandell Henderson, of Yale, suggested th I should consult Prof. H. S. Raper, of Manchest and I am indebted to Prof. Raper for valuable advic and also to him and to Dr. Catherine Chisholm f showing me the method of administration of pu oxygen in the Manchester Babies' Hospital. T great difficulty in carrying out my ideas was to obta sufficient pressure of oxygen and CO_2 without t risk of injury to the pulmonary alveoli from diste sion. This difficulty has been met by the constructi of the respiratory apparatus I am now about describe. I am much indebted to Messrs. Siel Gorman and Co., Ltd., of London, for constructing and for the assistance offered by Mr. Rosling, of th technical staff, and also for many suggestions as its practical working. The apparatus is now used the labour wards by my staff, and has proved a ve valuable aid in cases in which pulmonary respirati could not be established satisfactorily.

Apparatus.

The apparatus consists of a 15 cubic feet cylind containing a mixture of 5 per cent. carbon dioxi and 95 per cent. oxygen. It has a main valve (for regulating the supply of gaseous mixture. (P) the pressure gauge indicating the quantity in t



cylinder. This communicates with a safety pressu apparatus consisting of an automatic reduci pressure valve (R) and a control valve (C) for regulati the supply. The gas passes by way of the tube and the manometer (D) through a long flexible tu to a small gas mask (G). At the point where the lo flexible tube leaves the manometer there is a safe valve (S). The tube passes into the breathing-b through one of the ventilation holes. The man meter, which has a water column, is a combined flo meter, low pressure gauge, and a safety valve. indicates the pressure of the passing gas and als by turning off valve (C), it can be utilised for t detection of respiration. The maximum pressure the passing gas is 8 inches of water. Above th pressure it escapes into the bulb. Under norm conditions the rate of the flow is adjusted to 2 litr per minutes. (E) is the breathing-box which insur warmth and the proper amount of oxygen a ventilation. (F) are hot-water bottles under t hammock on which the infant lies. In this way t maternal heat of the body is retained. The temper ture is about 75° F.

In order to treat a baby suffering from "whi asphyxia" the infant is placed in blankets in t hammock and the lid of the box left open. The g is turned on, and by means of the control (C) and t flow-meter the rate of flow is adjusted to 2 litres p minute. The mask is applied to the infant's fa about 16 times per minute, thereby exerting slig pressure in the lungs. If it is thought that respirati

stablished, no matter how faint, the flow-meter be made to register this in the following manner: ontrol valve (C) is shut off and the water column becomes level. If the mask is now applied ly and firmly to the face the slightest respiratory ement will be recorded on the manometer. When ration is established the mask is left near the th for one minute and the lid of the box closed. tubing (T) is disconnected at (C) and attached to xygen cylinder, and oxygen alone is given for a minutes at the rate of 2 litres per minute.

ie breathing-box is also employed for the treat- of babies in the wards who are "blue" because nperfect aeration of the lungs. The infant is n an hour's treatment at various intervals in the and pure oxygen is supplied. The temperature bout 65° F. is maintained by hot-water bottles. results are excellent and the mothers themselves rk on the improvement in colour when the infant ought back to the ward. In these cases the carbon de is supplied from the lungs themselves. This od is employed by Prof. Raper and Dr. Chisholm lder babies under treatment for disturbances of bolism. We have used it in some cases of cardiac re in infants some hours or days after birth.

conclusion, it must be borne in mind that the nistration of carbon dioxide and oxygen is not but was employed in ancient times by mouth-outh insufflation, and is still practised by some cal practitioners. The mixture is also of value ases of cardiac and respiratory failure under thesia.

NOTE ON THE TREATMENT OF JENSEN'S RAT SARCOMA BY ANTI-SERUM AND ADRENALIN.

BY THOMAS LUMSDEN, M.D. ABERD.,
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BEIT MEMORIAL RESEARCH FELLOW.

(From the Department of Experimental Pathology, Lister Institute, London.)

HEN antisera which have a specific affinity for r cells are applied to normal and to tumour cells red in vitro the former cells are undamaged, while atter are killed within a few minutes.[1] is fact suggests that appropriate antisera should eal agents for the treatment of tumours in living als, yet when such sera are injected into virulent ths without accessory treatment they are com-ively ineffective. This is in part due to the fact the cytolytic effects of the sera involve a reaction een colloidal systems and as such may be ted to have a comparatively slow reaction ity. Now it has already been shown [2] that ances injected into tumours pass very rapidly the general circulation,* and accordingly it nes imperative to localise the antiserum in the ur area. This had been previously accomplished mporary ligation of the base of the tumour,[2] or ie case of flank tumours by tying their main ry and inguinal blood-supply.[3] These methods, ely applicable to the invading new growths of have in the present instance been substituted by njection of adrenalin into and around the area treated. Not only does the adrenalin insulate the tumour and permit of localisation of the antiserum, but, as will be shown later, by arresting the blood-supply, and possibly in other ways, it has itself a curative influence.

Methods.

Flank tumours (Jensen's rat sarcoma = J.R.S.) of 6–8 days' growth were selected for treatment; at this stage these vary from about 1 in. to 1½ in. in length. The tumour area was epilated or shaved. Black and white or brown rats were used, since in these, inoculations of the virulent strain of J.R.S. employed give 100 per cent. of tumours, of which less than 5 per cent. regress spontaneously. Albino rats of all ages are entirely unsuitable, since they vary too much in susceptibility and untreated controls may show a percentage of regressions reaching as high as 20–40. Adult rats have a much greater power of producing immune bodies than very young rats; it is therefore important that the age of the rats should be noted when interpreting the results obtained.

Adrenalin hydrochloride solution (1 in 1000) is diluted with 19 parts of normal saline, and of this dilution 1 c.cm. is injected around the margins of the tumour, beneath it, and above it. Some ten minutes later 1 to 1·5 c.cm. of anti-Jensen's-rat-sarcoma serum from a sheep (A.-J.R.S.) is injected very slowly and with little pressure into and around the tumour. This treatment is repeated daily as often as is judged necessary—i.e., until the sarcoma has ceased to enlarge and is surrounded by an inflammatory area. If too severe measures are employed the whole tumour may slough out and no immunity follow. In some instances the adrenalin was mixed directly with the serum in the proportion 1 to 20, and this was injected into different portions of the growth at frequent intervals (15 to 30 minutes) till the whole tumour was saturated. By way of control adrenalin alone diluted with either normal serum or saline solution was employed.

Experimental Results.

The results of all the experiments are shown in the following table. It is practically certain that if adult rats alone had been employed these figures would have appeared much more satisfactory.

Reagent applied.	Results.		Total treated.	Per-centage of cures.
	Cured and immune.	Failed.		
Antiserum and adrenalin	29	31	60	48·3
Adrenalin alone.. ..	6	24	30	20

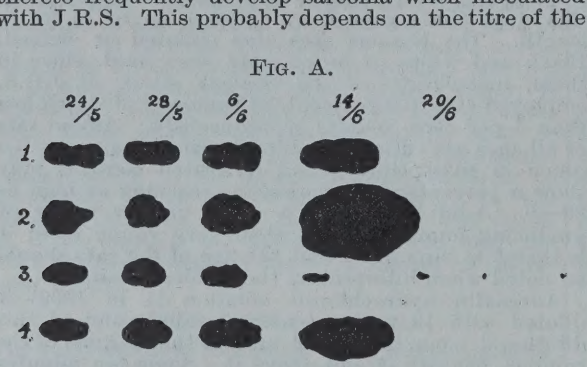
In the most successful of the experiments (illustrated in Figs. A, B, and C) of six rats treated with antiserum and adrenalin five were cured and immune, while of six control rats treated with adrenalin diluted with normal sheep serum only three rats were cured. In this experiment adult rats were dealt with. Where very young rats were employed the results were sometimes poor; thus in the least successful batch of five rats treated with antiserum and adrenalin only one was cured. This emphasises the observation that the production of immune bodies is essential for cure, since it is known that young rats have much less power of acquiring immunity than adults.

In 22 mice bearing a mouse cancer (M.63) of the axilla similar treatment was tried; the results were much less satisfactory. Often (in 12 mice) the tumour was entirely destroyed, leaving a large gangrenous area; this either sloughed away completely, no immunity resulting, or absorption of toxic matter from the degenerating area caused the death of the animal. In only two mice out of the 22 regression took place satisfactorily, and a test inoculation later proved these two mice immune. It appears that mice, like very young rats, have very little natural resistance and still less power of producing an acquired specific immunity.

[1] T. Lumsden: THE LANCET, 1925, i., 383.
[2] Lumsden: THE LANCET, 1925, ii., 539.
* striking confirmation of this fact is obtained if some ot soluble in blood—e.g., paraffin oil or benzol—is inocu- into a tumour; within a few seconds death ensues from lary embolism. A similar result follows the injection of cm. of air into a large implanted tumour. When the on is made into the normal subcutaneous tissues no such ensues.
[3] Lumsden: THE LANCET, 1927, i., 116.

It may be added that, confirming an observation previously reported,[3] rats which had been rendered immune to J.R.S. by cure of an existing sarcoma of the flank, were found to be immune also to the rat carcinoma R. IX. The converse does not hold; rats cured of R. IX. tumours and consequently immune thereto frequently develop sarcoma when inoculated with J.R.S. This probably depends on the titre of the

FIG. A.



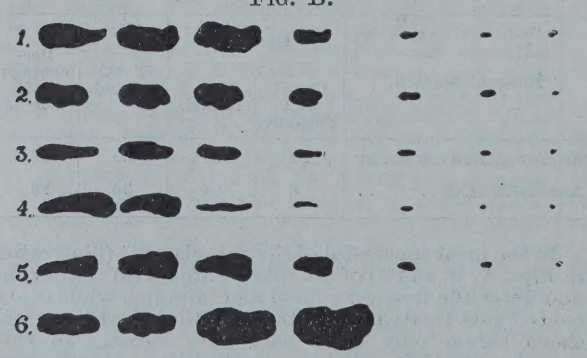
Tumours treated with adrenalin and normal sheep serum.

antimalignant bodies present, since J.R.S. is the more virulent of the two tumours.

Discussion.

The results obtained confirm the view already stated [2] [3] that if by inoculation of antiserum a rat sarcoma (J.R.S.) can be made to regress an active immunity is produced in the animal, which prevents recurrence and is of long duration. While injection of antiserum may be the best means yet found of inducing immunity it is not the only method of doing so. In a series of 13 adult rats 1 c.cm. of 0·2 per cent.

FIG. B.



Tumours treated with adrenalin and anti-J.R.S. serum from a sheep.

formol was repeatedly inoculated into the tumour; in eight of these rats regression of the growth resulted and the rats were here also found to be immune when test inoculated. Similar results have followed (as shown above) treatment of J.R.S. tumours with adrenalin alone. In nine animals the adrenalin was followed after a few minutes by injection of 1–2 c.cm. of distilled water; in four of these the tumours regressed and the rats were thereafter immune. Distilled water was employed because its lethal effects when applied to cultured tumour cells resemble more or less those produced by antiserum; it was also conceived that it might help to set free antigenic factors by causing rupture of the tumour cells.

It seems, then, that the aim we must keep before us is this: To find the simplest and most effective means of so damaging a tumour locally that its cells gradually die and become antigenic, and so induce a general active immunity. It matters little if the treatmen local, so long as the result is general. It is evident we may safely attain a much higher local concentra of any reagent in the tumour area by injectin locally than by instilling it into the general circulat where its effects would be exhibited in many part the body uselessly and perhaps harmfully.

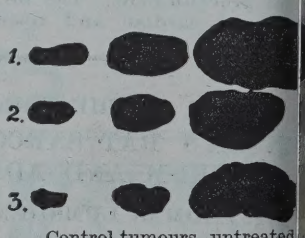
It may be well to tabulate here one or cautionary points referred to above or in prev papers:—

1. In comparing results, the age, breed, and co of the rats must be carefully considered. Pure w (albino) rats (two breeds were tried) should not used in experiments where J.R.S. is the tum experimented with.

2. Absorption into the general circulation of reagent injected into a tumour is very prone to oc and must be prevented as far as possible by ligatio adrenalin if the best results are to be obtained.

3. Frequently repeated small doses slowly inje are more effective than one large dose rapidly gi but since animals appear to become rapidly accli tised to any serum injected,[2] thorough treatment du the first 48 hours has advantages over a prolonged c repetition of small doses. On account of acclima tion it may also be of value to vary the antise administered—e.g., using for the cure of J.R.S anti-J.R.S. serum alternately with an anti-M serum, an anti-human cancer serum, or anti-guinea-pig sarcoma serum.

FIG. C.



Control tumours, untreated

4. The smaller the tumour the easier it is to cure. With the very virulent strain of J.R.S. we used, tumours of over 2 in. in length (8–10 days' growth) give poor results. There is little time available since if untreated the animals survive for a further 10–14 days, and even if treated any bodies formed are apt to be absorbed by the enor mass of tumour cells. Tumours under 1 in. in le (5–6 days) are very tractable except in the youngest rats (6–8 weeks old).

We are by no means clear that our present met are the best attainable; it is only by trying r different reagents that any conclusion on this can be come to.

Conclusions.

1. Sarcoma (J.R.S.) of the flank in rats of va ages can be caused to regress in at least 40–50 per of cases by injecting antiserum and adrenalin int around the tumour. After such regression the rat immune to reinoculations of this tumour and al inoculations of the rat-cancer R. IX. Cross-immu in the opposite direction is much less usual.

2. Adrenalin diluted with normal saline especially adrenalin diluted with normal heterol serum has a definitely curative effect. In 6 o 30 animals treated with adrenalin in saline regre with subsequent immunity resulted. When untr the tumours grew progressively in 98 per cent. of

3. Of 13 sarcomatous adult rats 8 were cure rendered immune by daily injections of 0·2 per formol into and around the tumour.

4. It appears that in all cases immuni evoked—damage to the tumour cells rendering antigenic—and that the induction of immunity essential factor in completing the cure and preve recurrence.

We are greatly indebted to Sir Charles M F.R.S., for permission to carry out this work a Lister Institute, and to Miss A. C. Kohn-Speyer, for much help, especially in keeping records o results. One of us (T. L.) has to thank the B Empire Cancer Campaign for a whole-time gra

ON THE
PARATIVE LABILITY OF ANTISERA CYTOTOXIC TO CANCER CELLS.

BY ALICE C. KOHN-SPEYER, B.A. OXF.

the Department of Experimental Pathology, Lister Institute.)

IE months ago while working with Dr. T. den on the effects of certain cytotoxic anti- n vitro, it was noticed that some of these were nger active if kept for more than a month, at 0° C., while others retained their toxicity least two years in the cold room.[1]

e former were also found to be inactivated, when recomplemented, after heating at 56° C. ew hours, while the latter retained their activity a much longer period of heating.

e experiments described below were undertaken tend these observations.

Methods.

e antisera tested were prepared by repeatedly lating fragments of tumours of various animals nimals of a heterologous species.

e following sera were chosen for investigation: nti-human-cancer serum made from a sheep. nti-Jensen's-rat-sarcoma serum made from a on each coverslip; to one of these cultures anti- serum was applied, the other was fed with normal serum as a control.

Rapid death of the actively migrating cells was taken as the index of toxicity of the antiserum.

Experimental Observations.

In all over 200 cultures were tested. The results obtained with the three antisera dealt with are set out in the following table:—

Anti-human cancer.		Anti-Jensen's rat sarcoma.		Anti-mouse cancer (M.63).	
Serum applied.	Cytolysis of M.63 cells.	Serum applied.	Cytolysis of M.63 cells.	Serum applied.	Cytolysis of M.63 cells.
	After—		After—		After—
Sample 1	5 hrs.	Sample 1	21½ hrs.	Sample 1	24 hrs.†
,, 2	6½ ,,	,, 2	20 ,,	,, 2	24 ,, †
,, 3	5 ,,	,, 3*	26 ,,	,, 3	49 ,, †
,, 4	5 ,,	,, 4	23½ ,,	,, 4	69 ,, †

* At 53° C. † Not tested later.

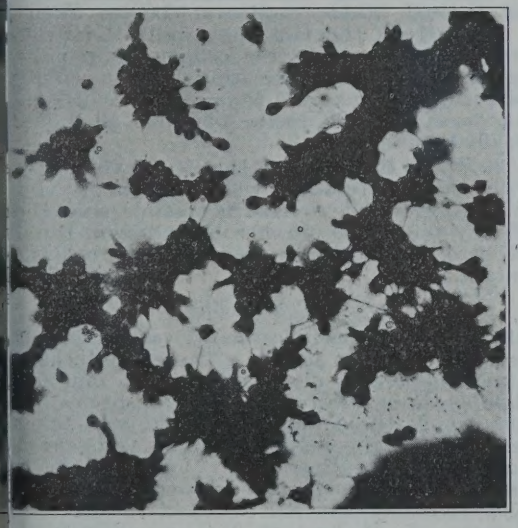
This table shows the longest period of heating at 56° C., which did not completely inactivate the particular antiserum tested; if the sera were heated beyond these periods no cytolysis occurred. The values for Anti-M.63 rabbit serum do not show an end-point, since no samples were tested after heating for more than 69 hours, at which period the antiserum was still effective. The results may be summarised as follows:—

Anti-Human Cancer Serum.—Heating for 6–7 hours at 56° C. completely destroys its cytolytic action on M.63, even in the presence of fresh complement. After 28 days at 0° C., or about six days at laboratory temperature (18° C.) the cytolytic action has similarly disappeared.

Anti-Jensen's Rat Sarcoma Serum.—This, when recomplemented, no longer retains its cytolytic action on M.63 cells after 21–24 hours at 56° C.

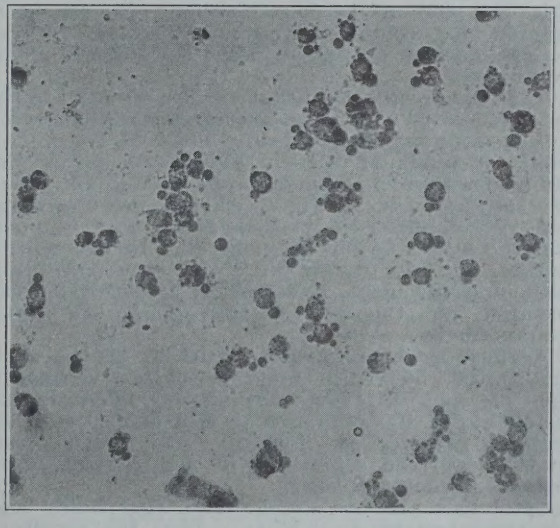
Anti-Mouse-Cancer (M.63) Serum.—This still kills M.63 cells by rapid cytolysis, when recomplemented, after 69 hours at 56° C. Keeping for over two years at 0° C. does not destroy its cytolytic effect on M.63 cells if complement is added.

FIG. 1.



e of mouse cancer (M.63) to which heated anti-mouse er serum had been applied without the addition of comple- t. The cancer cells are very markedly clumped, but are dead, and are beginning to migrate out again. (Iron matoxylin and Sudan.)

FIG. 2.



Control culture of M.63 in separate drop on the same cover- slip, stained coincidently with Fig. 1, showing the effect of heated anti-mouse cancer serum plus complement. Complete chromatolysis has occurred, the nuclei do not stain with hæmatoxylin, and death has occured too rapidly for agglutina- tion to take place.

. (3) Anti-mouse-carcinoma serum (M.63 of mperial Cancer Research Fund) made from a t.

e freshly prepared sera were run into short lary tubes and heated in a water-bath at 56° C. s were taken out singly and tested at hourly alf-hourly intervals. Similar samples were at 0° C. and tested every two or three days.

ce the cytolytic effects of antisera only take in the presence of complement, an equal part sh rat serum was added to all heated antisera.

e sera were tested on cancer cells actively migrat- ut of tissue cultures of mouse cancer (M.63) and n's rat sarcoma (J.R.S.) grown in pure rat serum. cultures in separate drops of serum were grown

[1] T. Lumsden: THE LANCET, 1926, ii., 112.

Discussion.

Although the results reported are sufficiently definite to demonstrate a marked difference of lability between the various antisera examined, the actual periods given in hours above must not be considered as absolutely fixed, since the following variable points must be taken into consideration: (1) The activity of the culture—age, vigour, number of migrating cells, &c. (2) The strength of the antiserum; this varies with the animal inoculated, the site and the number of injections, the length of time after the last injection, the length of time the serum is kept before heating. (3) The strength of the complement; this depends on the animal used, its freshness, and the actual dilution employed.

These factors were all considered in the above experiments and kept as constant as possible.

The complement question presented considerable difficulties. Guinea-pig serum could not be used as it is frequently toxic to mouse and rat tissues. Mouse serum was also discarded as it was found to be weaker and far more variable than rat serum in the amount of complement it contained. In order to give as little variation in the complement as possible, an equal part of fresh rat serum was always added to the antiserum in the above experiments, and the control culture was re-fed with the same rat serum alone.

It was noticed that addition of fresh complement was not needed even with heated antisera, if these were applied to cultures only 24 hours old, and which had been propagated in fresh rat serum, indicating that complement is still active after 24 hours in the incubator at 37° C. This observation is noteworthy, since if it were not taken into account, the erroneous opinion that complement is not necessary for the cytolytic action of sera on tissue culture cells might be formed.

That the presence of complement is essential to the cytolytic action of antisera on cancer cells is illustrated by the accompanying figures. These represent two similar cultures of M.63 in separate drops on the same coverslip, to which the same heated antiserum has been applied. In Fig. 2, where complement was added, complete chromatolysis has taken place and the nuclei do not stain at all. In the control culture, Fig. 1, treated with the same antiserum without complement, very marked agglutination has occurred, but the cells are alive, and the nuclei stain normally.

Agglutinins were found to exist in all the antisera tested, but when rapid cytolysis occurred in the presence of complement, migration ceased instantly and the cells died in situ almost as if an ordinary fixative—e.g., formalin—had been applied. In this case the agglutinins, though present, were unable to clump the cells.

Cytolysins are less stable than agglutinins and are more variable in lability. Thus the cytolysin of anti-human-breast-cancer serum is about four times as heat labile when tested on M.63 cells as the cytolysins of anti-Jensen's-rat-sarcoma serum, both sera being obtained from sheep.

The simplest explanation of this difference in lability is that an anti-cancer serum contains two cytolytic factors: (*a*) One that is specifically antimalignant, although not specific to any particular tumour. This factor is labile. (*b*) One that is antagonistice to the group of animals from which the antigenic tumour was taken. This factor is relatively stable.

It is by antibodies of type (*a*) = antimalignant, that antihuman breast cancer serum kills M.63, and by antibodies of type (*b*) = antispecies, that heated anti-M.63 serum acts on M.63, while fresh anti-M.63 serum is lethal to M.63 by virtue of containing both factors.

The following points observed during this investigation confirm this view. In an antiserum tested on M.63, wherever mouse-rat-group antibodies are present stable cytolysins are also present, and, on the other hand, only labile cytolysins are present when anti-mouse-rat-bodies are absent. Thus any antiserum m by using a rat or mouse tumour as an antigen conta a stable element toxic to M.63. Any antiser made from any tumour of another species—e guinea-pig or man—kills M.63 by means of a bodies which are comparatively labile. The existe of an antibody to M.63 in a "hyperimmune" J.R rat [2] is perhaps the best proof of the existence o separate antimalignant factor. This serum is pu antimalignant, it has no effect whatever on nor mouse tissues, and its cytolysin is more labile t that of any other antiserum tested. Simila in anti-human-cancer serum (no anti-rat-mo group bodies being present), antimalignant bo alone act on the M.63 cells, and the effect is absolu specific to cancer cells. If this antiserum is appl to a culture of mouse cancer, heart and kidn the cancer cells are picked out and killed rapi while the heart and kidney cells are left q undamaged.

As might be expected, the antispecies bodies most stable against tumours of the particular spe from which the antigen was derived, but they stable, although to a less degree, against the tumo of closely-related species—e.g., mouse or rat. T anti-J.R.S. bodies are more stable on J.R.S. than M.63 and vice versa. In an experiment to demonstr this, it was found that while anti-M.63 serum killed M.63 after 49 hours, it no longer killed J.R after 42 hours, and on the other hand, while a J.R.S. serum still killed J.R.S. after 27 hours more, it no longer killed M.63 after 24 hours.

A confirmation that anti-M.63 serum is toxi M.63 both through labile antimalignant antibo and through stable species antibodies when fr is supplied by the fact that while the fresh a serum kills mouse cancer cells more rapidly t normal tissues, it loses this specific affinity malignant cells if heated for some hours or kept s months in the cold room, and kills all mouse c equally rapidly.

The above facts suggest that to get the best res when treating tumours with antisera in vivo, sera used should be as fresh as possible, since the m recently the antiserum has been drawn, the hig the titre of specifically antimalignant bodies it contain.

Conclusions.

1. The cytolysins investigated vary in heat labi according to their nature. Those specifically t to malignant cells alone are at least four times labile as those directed against the species or gr from which the antigenic tumour was taken. From testing the heat lability of anti-cancer s it appears that heating at 56° C. for 6–7 hours dest the specific antimalignant element, while the a species element may still be effective after 69 h or more. 3. If kept at 0° C. complement is effective after about three weeks, the antimalign element after four weeks, while the antispe element is still active after two years or more.

In conclusion, I should like to thank Dr. T. Lums for his help and criticism during the progress of investigation, and the British Empire Cancer Camp for their grant to me.

[2] T. Lumsden: THE LANCET, 1927, i., 116.

PLYMOUTH VOLUNTARY HOSPITALS COMMITTEE.—The committee report a steady increase during 1926 in "1*d.* in £" contributory scheme membership. In last two years there has been an increase of over £ and the total sum now obtained by this means is £15,1 The scheme is being considerably developed in cou districts. A severe set back to the hospital service has b the partial closing of the Pearn Convalescent Home, w has through lack of funds been compelled to curtai usefulness. The Rest Home has been closed entirely the number of available beds in the home reduced by ne one-half.

Clinical and Laboratory Notes.

A NOTE ON THE REVENTIVE TREATMENT OF SYPHILIS.

BY H. D. LIVINGSTONE SPENCE, M.D., M.CH. Q.U. ONT.

'WENTY years ago great interest was aroused by chnikoff's statement in the course of his Harben ures that the inunction of a mercurial ointment, irst proposed by Behrman of Nürnberg, prevented sequent clinical manifestations of lues if performed he site of inoculation within 18 hours. Except for human subject his investigations had been ducted with anthropoids, chimpanzees being the y animals then readily inoculable with syphilis, their availability determining the number of his eriments. Experience has since confirmed the ability of mercurial ointment if correctly applied hin an hour of accidental exposure during operative k, but its use as long as 18 hours after the event st be regarded as of very speculative utility.

tubbing mercurial ointment into an accidentally cted finger is, however, on quite a different footing n the application of the same substance at the site sites of possible contamination during coitus. A longed inunction into the glans penis is rightly arded as an almost intolerable procedure, and even ere properly performed no absolute protection alts, since primaries may still develop upon reated parts of the genitalia or farther afield lough bites or lascivious kissing. The method, too, napplicable to females. Duly impressive statistics re been published purporting to show the effective- s of the "Dreadnought" ointment in preventing s, but the writer's observations in war camps ommodating upwards of 40,000 men, where records e methodically kept, were intensely disappointing. seemed that the man who used the stuff fared no ter and no worse than the unbeliever who just relied n plenty of honest soap and water, coupled perhaps h the ancient custom of washing the parts in ded urine.

Let us now consider the case of the person who sents himself a day or two after exposure, when phylaxis can only mean arsenical medication. ven acceptable evidence of actual contact no tification exists for delaying treatment until the roborative appearance of a primary sore dismisses y possibility of administering a coup de grâce; for, a true analogy obtains between human and rabbit ections, the disease is already systemic when the ancre appears. In a little more than two years I ve given anticipatory treatment to 11 private ients, being satisfied that they had in fact been posed. Insistence upon valid evidence of such posure not merely rules out the large class of psycho- hs and syphilophobes, but provides good ground in y for any action taken—a point of obvious import- ce. The following brief notes sufficiently illustrate e sort of history these individuals furnish and the ctical certainty of contamination.

May, 1925: A male patient with a small sore containing rochætes admitted connexion with his consort upon urning from abroad two days previously, the character of lesion being then unsuspected. The woman accepted ventive treatment.

September, 1925: A male patient upon the day following posure learned that a friend had acquired syphilis from same woman a fortnight before. A prophylactic injection s given after the friend had been located and the diagnosis nfirmed.

July, 1926: A male patient upon exposure noticed quieting symptoms in his partner, including an early h, and without disclosing his fears persuaded her to company him for advice concerning a "chill." Upon presentations she accepted routine treatment, the man eiving a prophylactic injection.

In each instance a careful history is accompanied by a complete physical examination, including the usual tests of the renal function, the circulatory apparatus, eyes, and reflexes. A sample of blood is then obtained for a Wassermann test, and finally 0·6 g. novarsenobenzol is administered intravenously. The Wassermann test is again performed at the end of the sixth and tenth weeks. No lesion has appeared in any of these patients, and serum tests have been uniformly negative, suggesting that novarsenobenzol used alone and in this moderate dosage is protective when given within a day or two after exposure.

London.

TWO CASES OF FUNCTIONAL PARALYSIS OF THE LEGS FOLLOWING LABOUR.

BY M. SALMOND, M.D., B.S. LOND.,
THIRD ASSISTANT, OBSTETRICAL AND GYNÆCOLOGICAL UNIT, ROYAL FREE HOSPITAL, LONDON.

THE two following cases are worth recording because functional paralysis is an uncommon complication after labour. They both occurred during the last six months in the practice of the Obstetrical Unit of the Royal Free Hospital.

CASE 1.—A 1-para, aged 24, had a spontaneous normal delivery of her second child. Her condition was satisfactory until the tenth day when she got up. She was then unable to use her legs or stand and there was weakness of the right arm and hand. On examination the cranial nerves and fundi were normal. The abdominal reflexes were present, the knee-jerks increased, and the plantar responses normal. Sensation was unimpaired. There was loss of power in the right arm and hand and in both legs. The patient was not of a nervous or emotional type. The condition responded rapidly to massage and diathermy and the patient was able to leave hospital in less than a week's time. She was walking, but not perfectly. Further treatment was to be continued as an out-patient.

CASE 2.—A primigravida had a very long labour, the membranes rupturing early in the first stage. She had poor pains in the first stage but complained bitterly of them. She was very difficult to control and was given opoidine and hyoscine hydrobromide. She complained during labour of severe pain in her left leg and said that it was paralysed, though movements of the limb were unimpaired. The presentation was vertex, right occipito-posterior, manual rotation was performed, and a stillborn child was eventually delivered by forceps. The patient was an extremely nervous and emotional woman. The puerperium was uneventful except that she said that her leg still felt numb. On getting up on the tenth day she was seen to drag her left leg behind her when she walked. On examination the nervous system was normal except for a slight increase in the force of the knee-jerks. She was treated by massage and diathermy and discharged in ten days walking well and without pain in the leg.

The two cases form an interesting contrast. In the first the paralysis occurred in a normal placid type of patient after a rapid easy delivery. The second patient was a highly nervous neurotic woman. Labour was prolonged and difficult.

I am indebted to Prof. Louise McIlroy and Dr. W. M. Gray for permission to publish these cases.

RAMSGATE HOSPITAL.—Dame Janet Stancomb-Willis has provided a home for the nursing staff at Ramsgate Hospital at a cost of £10,000.

THE NEW BETHLEM.—The plans of the new Bethlem Hospital on the Monks Orchard Estate have been completed and approved by the Governors. At the request of the Charity Commissioners the Board of Control are satisfying themselves as to the adequacy of the scheme, both as to building and cost. The total income of the hospital last year was £52,614, the expenditure exceeding it by £175. A total of 516 patients were treated (221 males and 295 females). Three hundred and eight persons were discharged; the percentage of recoveries on direct admissions was 56·38. Two hundred and ninety-eight persons were admitted, of whom 112 were paying patients. There were 27 deaths.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 337.*)

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

WEDNESDAY, JULY 20TH.

THE RELATION OF PREGNANCY TO GENERAL DISEASES.

AT the first meeting of this Section, under the presidency of Dr. J. H. FERGUSON (Edinburgh), Prof. MUNRO KERR (Glasgow) opened a discussion on this subject and spoke of

Heart Disease.

He pointed out that it was not yet decided whether the left ventricle hypertrophied during pregnancy or whether the extra effort was brought about by its latent reserve. Recent studies by Jensen and Norgaard showed that cardiac hypertrophy was normal and was associated with dilatation in 60 per cent. of pregnant women. In late pregnancy the heart was displaced upwards and backwards. Normally there was no change in blood pressure, but variations readily occurred from metabolic disturbances. Next to examination of the urine, estimation of the blood pressure was the most important detail in antenatal examination. The pulse-rate was very easily disturbed in the later weeks, and the increase in body-weight, blood volume, and cardiac output all played a part in producing variations. Some of the functional disturbances encountered were due to pressure from the uterus; others were caused by disturbed innervation, altered metabolism, and glandular activities.

In the real organic cases there was general agreement that it was the condition of the heart muscle that determined the gravity of the case, but the problem was complicated by the insidious metabolic and glandular variations of pregnancy. Coöperation between physician and obstetrician had resulted in a general consensus of opinion on the distress signals and treatment. Figures from the Royal Maternity Hospital at Glasgow showed a mortality of 22 per cent.; the average figure lay between 15 per cent. and 25 per cent. All the fatal cases in Glasgow suffered from mitral disease.

Danger Signals.—It was most important that cardiac cases should be sent into hospital in time to give medical remedies a fair trial. All evidence indicated a general tendency to earlier and more pronounced decompensation with each succeeding pregnancy. A history of unsatisfactory or easily unbalanced compensation before the pregnancy gave cause for special anxiety. General evidences of failing circulation were more important indications of danger than occasional cardiac irregularity. The prognosis became grave when cyanosis, œdema, albuminuria, and continuous crepitation appeared. For such cases Prof. Kerr always tried medical treatment for a week or ten days before terminating pregnancy. Where the heart was enlarged and other organs markedly disturbed the pregnancy should be stopped as soon as possible. Aortic regurgitation was not very common in pregnant women, but if uncompensated was very serious, especially with a "Corrigan pulse." Operative treatment should not be too long delayed, as once decompensation developed it was generally impossible to arrest it. Prof. Kerr's experience of mitral regurgitation agreed with that of Lennie, that if the cardiac muscle were satisfactory the prognosis was good. Mitral stenosis was the most difficult to gauge and most often caused anxiety.

Treatment.—While in many cases the shortening of the second stage by forceps was all that was necessary, constant consultation between physician and obstetrician was required to determine the exact moment when operative interference was best indicated. The operative intervention was often the immediate cause of death, either through delay or through selection of the wrong method. Emptying the uterus was not a simple matter, and it was most important to choose the method which would cause the least shock. In the early months the cervix must be dilated, ar stretching a sphincter had a pronounced depressi effect on the heart. If it were done gradually by ten time was lost, and tents were difficult to introdu aseptically in a primipara. The operation of electi was vaginal hysterotomy. During the later wee introduction of bougies was difficult in the primipa and there was no guarantee against one or two day delay. The speaker was convinced that Cæsare section would prove the accepted treatment of t future. The mortality figures in Lennie's series 17 cases was 11 per cent., although including some the worst cases, while the death-rate from the boug method was 44 per cent. Moreover, this operati allowed sterilisation and even hysterectomy in cas where it seemed advisable to stop the menstrual flo without interfering with the ovaries. Even whe labour came on spontaneously there was an advanta in Cæsarean delivery, as the shock of dragging a chi through the undilated vagina of a primipara was grav The anæsthetic was a factor of considerable importanc

The Puerperium.—Quite often heart failure set three or four days after the labour had been succes fully tided over. Two factors probably played a pa in this: degeneration of the hypertrophied muscl fibres and absorption from the decidual débri Autopsy often showed evidences of a superimpos acute endocarditis. The puerperium therefo demanded particular care and attention.

Tuberculosis in Pregnancy.

Dr. E. RIST (Paris) said that the belief of Hipp crates, that pregnancy was a cure for consumptio had not been fully eradicated; some medical m still believed that consumptive women could be children without paying heavily. Since we h learned to distinguish between the infection and t disease we had ceased to rely on general symptom The most fundamental signs were the demonstrati of a lesion by X rays and the presence of bacilli the sputum. While many cases of tuberculosis we overlooked it was by no means uncommon for oth morbid conditions—some harmless, some serious— be treated as tuberculosis. It was this diagnost doubt that accounted for the differences of opinion to the effect of pregnancy. Statistics based reliable diagnostic criteria invariably showed th pregnancy led to an aggravation of symptoms, to t extension of existing lesions, to the production fresh ones, and to the flaring up of those quiescer The few exceptions were women with very mi fibrotic tuberculosis. The speaker's figures show that 89 per cent. of his phthisical patients were ma worse by pregnancy, and 58 per cent. died after o or two years. Most commonly the patient had be in good health before pregnancy, and consumpti symptoms appeared during pregnancy or the pue perium. There was no better criterion of cure in treated tuberculous woman than the ability to be a child without mishap. It had been found th 20 per cent. or more of pregnant women lost the capacity of giving a positive skin reaction to tubercul and only recovered it some time after parturitio Pregnancy seemed to be one of the causes whi diminished the specific allergic resistance to tube culosis, but the reason was far from clear. Dr. Couland, of Paris, had shown that abortion ar castration had the same effect, while the advent puberty or the menopause and of each pre-menstru phase might be accompanied by a marked failing the skin reaction. The effect of menstruation tuberculous symptoms was well known, and a hig proportion of cases occurring in later life began at th menopause, while Couland had collected a number cases where it followed double ovariotomy. In h opinion the hyperactivity of the thyroid was th connecting link. People with an abnormally lo thyroid action rarely got consumption, and then on in a mild form.

Treatment.—There had been considerable oppositi to operative interference. If abortion were accepte as the correct measure it would frequently be don

ıjustifiably or unnecessarily, nor had it been proved ficient in arresting the course of the disease. It ight be quite as unfavourable as a confinement. rtificial pneumothorax should be tried wherever it as possible; it had been proved to interfere in no ay with the favourable course of pregnancy and bour, and so had the advantage of saving the child's e in many cases. Dr. Rist then gave the figures of study of 58 women for whom pneumothorax had en tried. 27·5 per cent. were successful, but among omen so treated before pregnancy started the sults were much more encouraging. The older the neumothorax when conception occurred the better. a woman who had been treated in this way had en clinically well for two years there was no reason hy she should not become pregnant; but the llapse should be maintained during the first trial id for at least six months after confinement, and e should not nurse the baby.

Prof. F. J. BROWNE (London), speaking of

Venereal Diseases in Pregnancy,

alt first with syphilis. He laid special stress upon ethods of diagnosis and emphasised the great value an examination of the ovum in the diagnosis of philis in the mother. The mother of a syphilitic ild was always herself syphilitic, although a philitic mother might occasionally give birth to an fant in which no sign of syphilis could be detected. e pointed out that it was essential to give treatment each successive pregnancy, whether the patient peared to be cured or not. He next dealt with me of the difficulties in diagnosis and treatment of norrhœa and with the value of a negative smear. The following principles were laid down as essential r the proper management of cases of syphilis and norrhœa in pregnancy.

1. A routine Wassermann test should be carried out in antenatal clinics.
2. The treatment clinic should be in the maternity spital and not in an ordinary V.D. centre.
3. The treatment was best carried out by women doctors.
4. Beds should be provided in every maternity hospital cases of venereal disease. They were necessary for tients with acute or complicated gonorrhœa, for those o lived too far away to attend regularly for treatment, and those who suffered from venereal disease along with other mplications of pregnancy requiring indoor care—e.g., uminuria or heart disease. These beds should not be elled "V.D.," but should be classified and referred to as ntenatal," and be a part of the antenatal department.
5. A pathologist should be available who is able to amine the ovum for evidence of syphilis.
6. A list of infants believed or suspected to be suffering m syphilis should be sent monthly, or oftener, to the ild welfare medical officer, so that he can follow them up.
7. A follow-up nurse was essential to hunt up patients o failed to attend regularly for treatment.
8. There should be the closest touch between the maternity D. clinic and the ordinary V.D. treatment centre in order at cases may be referred for postnatal treatment and at the husband may also be treated effectively.

General Discussion.

Dr. GIBBON FITZGIBBON related a series of 22 cardiac ses which had occurred among a total of 13,000 con- nements during his mastership of the Rotunda ospital. They were all cases of failure of compensa- on and showed a mortality of 22·7 per cent. From review of these he divided such cases into three oups for prognosis. The first included those in hom decompensation only occurred as a result of bour and in whom prognosis was good. The second oup was that in which decompensation occurred ring pregnancy; if treated early and especially in young primipara the prognosis was good, but was id in the third group where decompensation was glected until the onset of labour. The prognosis r the infant was good when the mother was treated. ecompensation did not tend to develop until the cond half of pregnancy, but its onset was found ogressively earlier as the number of pregnancies and ie age of the patient increased. Over 75 per cent. compensated primigravidæ would go to term; ne-third of them developed failure in labour, but ey delivered themselves of living infants and recovered. Only 50 per cent. of multigravidæ would go to term, and rather more of them than of primiparæ showed heart failure in labour. Compensation was more difficult to re-establish during pregnancy in a multipara than in a primipara, and there was a marked tendency to relapse during labour. After treatment the pregnancy almost always ended at the 36th or 37th week. Cardiac lesions tended to produce abortion and diminish the incidence of pregnancy. Women who had shown no signs of heart failure might continue through labour, with especial care during the last eight weeks in a primipara and 16 weeks in a multipara. The latter would probably be best delivered by section at the 36th week if symptoms of failure had appeared, and should be sterilised. If symptoms appeared before the 30th week she should be delivered as soon as possible, as it was most unlikely that pregnancy would continue until a date of viability. Labour during decompensation was easy and rapid. In a subsequent pregnancy the case of decompensation in labour should be kept at rest from the 24th week, and pregnancy should be ended at the 36th week by section with sterilisation. The case of decompensation during pregnancy should never be allowed to continue with another pregnancy. Induction of labour had no place in the treatment of decompensation, and at other times would be better replaced by section and sterilisation.

Sir EWEN MACLEAN quoted the opinions of those who had had large experience of tuberculosis and pregnancy—Dr. D. A. Powell, tuberculosis physician to the Welsh National Memorial Association, and Dr. A. Brownlee, of the Glan Ely Tuberculosis Hospital. Their attitude was less pessimistic than that of Dr. Rist. He agreed that many diagnostic mistakes were made in recorded cases. The supposed improvement during pregnancy might be due to the altered metabolism, giving an appearance of better health. It might also be partly due to the pressure of the uterus on the diaphragm, acting in the same way as phrenicotomy. Dr. Powell said that tuberculous women need not avoid marriage, but no risk of pregnancy should be incurred until three years after the disappearance of signs and symptoms. If pregnancy occurred during the course of the disease it might be allowed to go on if there was no infection of the larynx or, in surgical cases, of the hip or spine.

Prof. LOUISE MCILROY did not agree with Prof. Kerr's pessimistic outlook on cardiac cases. No other class of case had illustrated so well the value of antenatal work. She showed tables of 158 unselected cases, of whom 2 per cent. died. Rest was the keynote of the treatment; it was no use to flog the failing heart of a poor working woman with digitalis and other stimulants. The obstetrician was useless in the diagnosis of heart conditions; the physician must be consulted. At the Royal Free Hospital an electrocardiogram and a weekly antenatal cardiac clinic had been instituted. The majority of cases seen were mitral; next in number came the "toxic" heart. Only when every form of medical treatment had been tried in vain should pregnancy be terminated. If abortion was done once it would have to be done many times; the patients would come back again and again. It was a rule at this hospital never to do Cæsarean section unless the patient were in labour, and this had greatly reduced the number. Many apparently hopeless cases would go through labour easily and normally. Many young women might be able after some years of treatment and care to have a child again without danger; sterilisation, therefore, was not desirable, and such cases were supplied with a Dutch cap contraceptive pessary on leaving hospital. The speaker did not approve of subtotal hysterectomy, as the absence of the menstrual outlet produced bad effects on the blood pressure. She laid stress on the break in the continuity of treatment of the tuberculous mother. The sanatorium would not keep patients after the seventh month and they were often sent out to a poor home under the worst possible conditions. This was one of the reasons for relapse after the confinement, and public health authorities should

be forced to provide an institutional home for them. Continuity of treatment was also of great importance in venereal diseases. Cases at the Royal Free were put in a special ward and visited weekly by the V.D. specialist and sent back to the V.D. department after delivery.

Mrs. M. MACNICOL (Edinburgh) urged that syphilis and gonorrhœa were quite different problems and that it was time to drop the obsolete common term "venereal disease." Syphilis could be accurately diagnosed and fully and satisfactorily treated; in gonorrhœa the reverse was the case. Among the last 150 cases sent to her with persistent discharge, all clinically chronic gonorrhœa, not one had shown the gonococcus at the first taking of a film. It was most important to impress on all syphilitic patients that they must report for treatment when next they became pregnant. The usual course should then be given whether there were indications for it or not. Antisyphilitic treatment was often justifiable and successful in cases of repeated miscarriage and still-birth, even if the Wassermann were negative. There had been two cases of sudden death at the second intravenous injection of arsenic after confinement, so that the speaker now made it a rule not to start treatment before the third month. The number of women suffering from purulent infective discharges during pregnancy was never realised before the establishment of antenatal centres. The cervix might be found bathed in pus, teeming with micro-organisms, even when no discharge was complained of. The discomfort and damage to health so caused could not be exaggerated. In-patient treatment was not possible or necessary; patients did well on bi- or tri-weekly cleansing. Acriflavine and gelatin pessaries were very useful and should be followed 12 hours later by lactic acid swabbing. One of the worst features of gonorrhœa was the sudden unexplained lighting up of a salpingitis or ovaritis after parturition. Usually, however, the puerperium of carefully treated cases was uneventful. Sometimes the condition could not be cleared up and a certain amount of purulent discharge, inflammation, and irritation subsisted. This was worse in the last week or ten days, when the head was in the pelvis. Therefore where there was erosion and profuse discharge the woman should be admitted during the last three weeks of pregnancy. The results of treatment became manifest after delivery, although in some cases a discharge persisted through lactation.

Dr. E. K. MACKENZIE (Tain), speaking from the experience of a rural practitioner in the Highlands, said that mitral stenosis in primiparæ and aortic incompetence in multiparæ had given him most trouble. The former had a strong tendency to cause distressing symptoms after the sixth month. He treated his cardiac cases by rest, not often easy to enforce, some modification of the usual flatulence-producing diet of the crofter, a morning dose of salts, and a weekly blue pill in the later months. He only gave digitalis if there was fibrillation of the auricle; it was best given in Guy's pill. It was surprising how well patients went on. He assisted labour with morphia, but found that hyoscine caused depression and mental distress, while pituitary extract was dangerous even when it would be helpful in other cases. When the head reached the perineum he administered light chloroform anæsthesia and helped delivery with gentle traction on the forceps. The most distressing feature of aortic cases was the mental disorder so often encountered; it included alienation from family and friends and abusive excitement, and was a potent factor in producing heart failure. Palliatives helped the patient to carry on, but abortion gave immediate mental relief with no memory of the excited phase. He induced labour before full term and used morphia and hyoscine, with pituitrin in repeated small doses.

Dr. R. H. PARAMORE (Rugby) suggested that the reason why the blood pressure was not raised in normal pregnancy was that the skull and limbs received a greater blood-supply; this explained the tendency to right heart failure. He advised hysterectomy if the Cæsarean operation were to be performed, because this removed from the kidneys the strain of dealing with the products of puerperal autolysis.

Prof. R. G. MCKERRON (Aberdeen) said that pregnancy with advanced heart disease was always a serious matter, and its treatment aroused much difference of opinion. Interruption of pregnancy in the early months was very seldom necessary.

Mr. D. LEES (Edinburgh) declared that the end result of gonorrhœal smears was not worth the paper it was written on. He mentioned the significance of leucodermia and melodermia in the neck as pathognomonic of syphilis and the value of a provocative injection of salvarsan three or four days before doing the Wassermann test. He urged continuity of treatment for venereal diseases and agreed that the term was undesirable as a large proportion of the patients did not suffer from disease venereally acquired. They should be handled in the gynæcological department. Syphilis rarely caused high blood pressure, but was not infrequently the source of heart lesions which responded well to antisyphilitic treatment.

The PRESIDENT recalled a case of double aortic and mitral lesions where the woman had had five children, illustrating the value of allowing old-standing cases a chance. A frequent cause of collapse after delivery was the accumulation of blood in the right heart; venesection would bring such patients back from the gate of death.

Prof. MUNRO KERR, replying, said that he agreed with the President about blood-letting and with Dr. Paramore about the value of hysterectomy, and admitted the importance of recognising the syphilitic heart. His cardiac cases were very grave ones only if had he included all patients his figures might be more like Prof. McIlroy's.

Dr. RIST, in reply, explained the experience on which he based his pessimistic attitude. He thought that if obstetricians followed up their tuberculous patients over long periods of years they would come to agree with him. They seldom saw the almost cataclysmic exacerbation when the patient returned to the physician. He did not think the effect of pregnancy on the lungs could be compared with that of phrenicotomy, as in the latter case the movements of the diaphragm were not only impaired but actually reversed.

THURSDAY, JULY 21ST.

At the second meeting, under the chairmanship of Dr. GIBBON FITZGIBBON, Prof. R. W. JOHNSTON (Edinburgh) opened a discussion on the

Hygiene of Menstruation in Adolescents.

On wise management early in the reproductive life, he said, often depended the happiness or misery of a woman's later years. The changes of puberty and adolescence concerned not only the reproductive organs but the girl's entire organism. Modern research had suggested that all the glands of internal secretion played a part in the development of the secondary sex characters, and so it was obvious that this period was a very critical one. Although the whole organism took part, the sex organs were the star performers, and Nature was concerned almost entirely with reproduction. If other functions were developed at the expense of this one Nature exacted a heavy penalty. During adolescence the reproductive organs called for an especially good supply of blood and nerve energy, and the extensive diversion of these to the muscles or the brain was probably responsible for many disorders of menstruation and reproduction.

Menstruation was a natural phenomenon, and the ideal to be aimed at was a natural life. In terms of civilisation that meant "moderation in all things." Too strenuous a life, too much physical or brain work, too much frivolity, and serious irregularity might do irreparable damage. Almost as dangerous, however, was the fostering of the idea in a girl's mind that she was a subject of very special physical delicacy in these periods. This attitude was a relic of the past, based

the mystery which until recently had enshrouded enstruation. The Jews to this day believed that it as a cathartic process and that a menstruating oman was in some way impure, to be forbidden a rt in ordinary social and religious life. From this veloped the belief that menstruation, especially at beginning, produced a delicacy which debarred the oman from active exercise or work. There was in is idea a certain amount of truth, but the unfortunate le of it was the implication that menstruation was thological—vide the expressions "unwell," or poorly," and the reticence surrounding the whole bject. The profession had to dispel the relics of is tradition. A sane outlook would do away with uch dysmenorrhœa, as did the exigencies of war rvice. Finally, girls should be taught the significance the menstrual function, better individually than in ass, and preferably by their own mothers. To allow em to acquire distorted or evil ideas haphazard was imperil their happiness.

School Life and Irregular Menstruation.

Dr. J. H. P. PATON (St. Andrews) stressed the portance of laying down a high level of general alth before puberty. This was secured nowadays regular school games. Although many girls could ay games during the period with advantage, he ought that the rule at St. Andrews, of stopping mes for the first three days and substituting walking ercise, was a good one. He exhibited tables to ustrate the incidence of dysmenorrhœa in this school, d showed that the percentage of total immunity as very high. 78 per cent. had no pain and 90 per nt. had no regular pain. Habits between periods re, he said, more important than habits during the riod itself.

On the subject of regularity his statistics proved at intermittent amenorrhœa was the rule up to 16. egular menstruation was rare at 13 and 14—only per cent. of the girls claimed it; at 16 the figure as better, 46 per cent., and at 17, 18, and 19 it rose 62 per cent. These figures were alarming, for if e common belief was true they indicated a persistent ficiency of ovarian secretion in a large proportion the mothers of the future. Many girls menstruated gularly in holidays and irregularly at school, and e reason was undoubtedly the long hours of con- uous mental and physical effort imposed by the odern school curriculum. He quoted authorities for e assertions that strenuous work and play meant a or flow, and that women employed in industry had low fertility-rate. The anxiety connected with mpetitive examinations and games was another ctor in irregularity. He complained of the lack of mparative statistics from which the effect of varying tivity could be inferred.

Growth and Weight.

Dr. ALICE SANDERSON CLOW (Cheltenham) compared e ages of onset in a group of schoolgirls and in a oup of girls at a training college. In the former oup the usual age was 13, in the latter it was 14. ie schoolgirls were the children of well-off parents; e college girls came from humbler but not necessitous mes, and had usually been to elementary schools. ie schoolgirls had a higher average of physique, and is might account for the earlier catamenia. She owed charts of the weight- and growth-rate in lation to the age of onset, to indicate an answer to e question of when delay should be regarded as thological, and inferred the important rule that, long as weight increased and growth continued, no xiety need be felt at the absence of catamenia. ilure of the secondary characters to develop after was very rare. Menstruation should be free from ffering of any kind, and adequate medical attention uld help to bring this about. Dr. Clow remarked at even in these days most educated mothers ught their daughters to consider themselves ill at e period. She had found that girls were delighted be allowed warm baths, games, and gymnastics, hich latter she advised especially on the first two ys. Her instruction had reduced the percentage of sufferers from 46·7 to 10·8 in 13 years. Girls engaged in standing and sedentary occupations were the most liable to dysmenorrhœa, which could be largely abolished by 15 minutes' exercise a day in the open air. Neurotic disturbances were best treated by sound instruction, and by advising healthy activity of body and mind.

Dr. ETHEL VAUGHAN SAWYER agreed that menstruation should impose at the worst a slight lassitude on a healthy woman. There was a close connexion between painful menstruation and toxæmia, especially that resulting from measles or scarlet fever, which caused slight degeneration and loss of tone in the uterine muscle. This was most frequent if the infection occurred at 13 or 14; catamenia was then usually delayed until 15 or 16. "Congenital" ante- and retro-flexion were really, she thought, due to a softening of the uterine muscle resulting from a toxæmia following one of the childish diseases. Concerning hygiene in schools, she recommended a warm bath every day during the period. Cold baths checked the flow, and warm baths stimulated it by easing congestion. Games were too strenuous, but walking, Swedish drill, and dancing were good.

The Psychology of Dysmenorrhœa.

Dr. G. I. STRACHAN (Cardiff) spoke of the subject from the psychological aspect. Gross menstrual abnormalities often occurred without affecting the mind, and menstruation, whatever the text-books said, might be unaffected even in the severest mental disorders. Minor mental disturbances were very rare in the early months of the function. He recommended individual instruction, but questioned whether the mother was necessarily the best person to give it. It was not necessary to insist on any rule, either of continuing to play games or of lying down; the girl should do what she liked. Re-education in healthy living was the treatment for dysmenorrhœa in the absence of obvious organic trouble.

The CHAIRMAN agreed with Dr. Clow that girls in comfortable circumstances and of healthy habits started menstruation considerably earlier than others. Those developing dysmenorrhœa between 20 and 25 usually gave a history of early measles, scarlatina, or septic tonsils, which set up pelvic peritonitis with damage to the ovaries and tubes.

Prof. LOUISE MCILROY (London) said that every normal girl ought to be brought up to ignore menstruation entirely and do what she wanted, but that doctors should not let this principle prevent them from detecting pathological dysmenorrhœa. Menstrual troubles often arose after a girl left school, because she was relatively unoccupied. Unhappy marriage was another cause. Among girls doing manual work the incidence was low, but it was high among sedentary workers. The speaker recommended dancing as the best exercise for the period. Games had nothing to do with fertility, but competitive games and examinations might produce bad after-effects. Intellectual work was an important adverse factor. Contrary to Dr. Strachan's experience, she had found that mental patients suffered from long periods of amenorrhœa, which curettage, an objectionable operation in many ways, did not improve.

Dr. CATHERINE CHISHOLM (Manchester) mentioned two factors producing dysmenorrhœa: nervous strain and overwork with consequent failure of the general health. Examinations caused a failure in health and so made the period painful, and the girl's fear of the next completed a vicious circle. Girls should be taught to report dysmenorrhœa to the doctor, and general practitioners should regard the condition as important. Games were permissible as long as the girl was fit, but they should be part of the curriculum and not a heavy addition to it. This was a fault more common at day-schools.

Dr. MABEL RAMSAY (Plymouth) said that her only dysmenorrhœa patients nowadays were factory workers of about 21, and employers would find it an economic advantage to provide regular exercise. Pathologically-delayed catamenia might be a result of early under-

feeding. Mumps was a virulent source of pelvic trouble. She advocated cold baths and swimming.

Dr. E. FARQUHAR MURRAY (Newcastle) said that amenorrhœa in older girls was often associated with under-development of the uterus, and the patient was then sterile. Another symptom of this was a very scanty discharge and dysmenorrhœa. Very early treatment gave the only chance of improvement. Some authorities recommended ovarian extract and thyroid.

Dr. R. WATSON (Belfast) spoke of the girl with an excessive discharge, who lost blood in serious quantities. She generally had a small uterus which went very soft. The treatment was rest and open air, with Easton's syrup and 1 gr. of ovarian extract three times a day. The speaker deprecated the use of curettage and radium, though Bonney's operation had given good results with one patient who had refused medical treatment. He suggested that many dysmenorrhœa sufferers had a small os.

Dr. LILIAS JEFFRIES (Brighton) condemned the rule forbidding exercise and games, making a girl consider herself sickly for three days out of 28. It was sufficient to require the girls to report the period to their house-mistress, who would leave the hardy ones alone. A most important cause of trouble was constipation due to hurrying into school after breakfast and omitting the duty of clearing the bowels. Ordinary practice games were innocuous, but sea-bathing ought to be given up.

Prof. J. HENDRY (Glasgow) stressed the importance of the general health between periods, advocating very vigorous exercise, like tennis and badminton, for strengthening the abdominal walls and toning the muscles generally, especially just before the period.

Dr. J. H. FERGUSON (the President) remarked that anæmia had diminished in Scottish girls' schools with the improvement of the curriculum.

Dr. W. F. T. HAULTAIN (Edinburgh) put down constipation to drinking too little water, and advised an aperient during the period, a time when bowels were apt to be sluggish. Games and warm baths were useful then, as they stimulated the flow.

Dr. R. T. SUTHERLAND (Melbourne, Australia) wished each girl to be considered as an individual and not subjected to a general rule. He praised the shower-bath, so rare in English schools.

Prof. JOHNSTONE, Dr. PATON, and Dr. CLOW replied.

FRIDAY, JULY 22ND.

At the third meeting, under the presidency of Dr. J. HAIG FERGUSON, the proceedings were opened by a paper from Dr. F. A. E. CREW (Edinburgh) on the

Effect on the Sex Ratio of Conception Early and Late in Relation to the Œstral Cycle of the Rat.

Dr. Crew reviewed the history of scientific opinion on this matter, and pointed out that Thiery in 1863 had maintained that the ovum when first extruded was female, but that at some point in its passage it became male. Thus fertilisation immediately after ovulation would produce female offspring, and later would produce males. Experiments had shown that, if an interval of 89 hours passed between the first and the second fertilisation in the frog, the second half of the eggs were all males, a result which could only be explained by saying that the effects of delayed fertilisation were such as to transform their metabolism, turning them from determined females to determined males. The same results were obtained by desiccation of the toad's egg. Work on the ringdove had suggested the statement that a high metabolic rate led to a physiological state of maleness, and Riddle had extended this to cattle. It was not yet established that the egg does take up water from the genital tract, or that results recorded for amphibia might be applied to mammalia. Nevertheless, there was a suggestion that sex reversal before fertilisation might be possible. A marked difference in the sex ratio of calves from early, late, or middle service in relation to the œstral cycle of the cow had been claimed. It was, however, impossible for the breeder to tell which stage of œstrum a cow was in, but with the new method of vaginal smears the phases of the rat could b accurately determined. Dr. Crew then described son experiments performed by himself on the rat, and th precautions necessary to eliminate secondary factor When the female was fertilised in the first thr hours of œstrus proper, the result of 35 litters w 98 males and 91 females, a sex ratio of 51·84. The were 15 pseudo-pregnancies. When she was fertilise in the last three hours the result of 28 litters w 77 males, 82 females, ratio 48·43. Pseudo-pregnanci numbered 22. Dr. Crew observed that no o experiment could cope with the numbers necessa for decisive conclusions. It was important for su experiments, therefore, to be multiplied and correlate He concluded that, so far as they went, these resul tended to support the conclusion that time of servi is a factor of no importance in the determination sex in the mammal. He added, however, that rece work pointed to the fact that staleness of the egg w associated with a disturbance of its general metabolis which seemed in some cases to be such as to lead to complete transformation of its characteristics.

In reply to a brief discussion, Dr. Crew added th obstetricians would not long be allowed to ple ignorance of this matter. It was important that o of the accumulation of knowledge should come pow In the human being it had been stated that the e played no part whatever; there were two kinds spermatozoa, which determined sex. Recent wo however, showed that the story was not so simp This mechanism could only operate normally a perfectly normal state of the zygote, and t directing action of the sex-determining mechanis could be transformed by any disturbance in t general physiology of the egg.

Prof. W. FLETCHER SHAW (Manchester) then rea paper reviewing his experience of

Uterine Fibroids after the Menopause.

He said that fibroids might cause symptoms over long range of years, but that most patients began complain between 45 and 50. In considering t advisability of operation the two points to be consider were: (1) that the menopause was often delayed such cases, and (2) the possibility of malignant a degenerative changes in the fibroids afterwards. T more experience he had the more he was impress with these serious later complications. Removal a healthy woman of about 50 entailed very slight ris but the risk was gravely increased in a woman over in whom long degenerative changes had produc chronic ill-health. During the last six and a half ye he had operated on 62 patients, eight of whom w over 60 and three over 70. The symptoms were:

1. General ill-health. Three cases had been too ill operation; many had been enfeebled by a very large fibr and prolapse with increasing pressure symptoms, reduc them to a miserable existence.

2. Malignancy: three sarcomas and three ade carcinomas.

3. Hæmorrhage after the menopause without malignan

4. Acute pain due to advanced degenerative chang associated in two cases with profuse hæmorrhage.

5. Chronic pain.

6. Torsion—a rare complication, but two cases occur in this series. The onset of symptoms might be acute subacute.

7. Torsion of the pedicle of a subperitoneal fibroid: t cases.

8. Pressure symptoms. The normal post-climacte shrinking of fibroids sometimes allowed a previou abdominal tumour to sink into the pelvis, causing retent of urine, pressure on the rectum, or bearing down. Occasi ally the growth increased in size instead, and led frequency of micturition or swelling of the legs.

9. Rapid increase in size, generally due to cy degeneration.

10. Absorption of degenerative products, produc general ill-health, loss of weight and appetite, and anæm

11. Ascites, due to calcareous degeneration wh irritated the peritoneum.

He urged the importance of removing fibroids ea when the patient could stand it, and obviating the r of these later troubles.

Dr. BETHEL SOLOMONS (Dublin) agreed, and s that the people who were advocating X rays w

obably working in the wrong direction. He had en cases so treated in whom malignant degeneration d occurred and who had been quite inoperable nen discovered. To the general practitioner the flex symptoms caused by fibroids were very portant; he had known nervous symptoms, miting, and so on, relieved by removing a fibroid erus. Stovaine spinal anæsthesia was the method choice in some of these cases. Prof. LOUISE CILROY, Dr. GIBBON FITZGIBBON, Dr. J. YOUNG, d the PRESIDENT expressed their agreement. Prof. AW, in reply, remarked that text-books said thing of what happened to fibroids after the enopause. A fibroid uterus had a very much greater ance of becoming malignant than one which had fibroid. Though he would not say that every roid should be removed, yet, taking the risk of alignancy with that of degeneration in a large roid, he would say that every large one ought to be ken out. Spinal anæsthesia was the best method less the anæsthetist were a real artist.

Dr. DANIEL DOUGAL (Manchester) then presented a view of 100 cases of

Ectopic Pregnancy.

these 51 per cent. had aborted, 37 per cent. had ptured, and 12 per cent. remained unaborted and ruptured. The chief predisposing factor was a eceding pelvic infection, which might be visible at eration, except that the results of gonorrhœa were en limited to the tubal mucosa. At least 50 per at., however, would show old-standing adhesions out the non-gravid tube. In addition, puerperal otic infection, abdominal tuberculosis, and appendi- is played an important part; 59 per cent. of tubal gnancies were on the right side. Developmental normalities were contributory causes, and 2 per cent. cases had fibroids. Age was of no importance, nging from 21 to 43. 48 per cent. occurred during e first five years of marriage, and 35 per cent. during e second quinquennial period. 10 per cent. of the tients had been married a year or less. In the wly-married and apparently healthy woman some her cause must be sought; one-third had never had previous pregnancy, while 10 per cent. had had a erine abortion as the result of the only previous tilisation. The series showed some support for the w that ecotpic gestation followed a period of rility. The diagnosis was based on a symptom- mplex including amenorrhœa—not usually longer an two months—irregular uterine hæmorrhage, and dominal pain. Very acute cases, where the peri- neal cavity was flooded with blood, might complain shoulder-pain. The bleeding continued after the cidua had come away; it might be due to chorionic li left in the tube. The importance of the symptoms pended on their combination; all three were esent in 64 per cent., and bleeding and pain in per cent. The order was amenorrhœa, pain, eding. There were three clinical types: (1) where e ovum stayed in the tube, causing little or no emorrhage into the abdomen, 13 per cent.;) profuse intraperitoneal hæmorrhage, 27·6 per cent.; d (3) gradual or repeated hæmorrhages, 62 cases. ie patient might be prostrated by the profuse emorrhage or might react to it, so that when erated on she resembled a case of the third type. vestigation of the symptoms might reveal, in dition to the three cardinal ones, pain on micturi- n, dyspareunia, pain on defæcation, and retention urine. The patient looked ill and had generally me degree of anæmia. The temperature might be er 100° F. The abdomen was tender and showed her a sensation of resistance over the pelvic brim a tumour capable of displacing structures, but there uld be no rigidity. The treatment was surgical, d the sooner the better; expectant treatment was ngerous, except to improve the general condition severe cases of shock. The particular operation pended on the type of case and condition of the tient. The gravid tube should be removed. Some thorities removed both, as second cases in the maining tube were not uncommon, but this was going too far, as many had normal labours subsequently. The prognosis was good; there had been no deaths in his series; 43 cases had no further pregnancy; 46 per cent. had subsequent uterine pregnancy; and 13 per cent. ectopic.

Dr. MABEL RAMSAY (Plymouth) related her experience of ectopic cases, and Dr. H. LEITH MURRAY (Liverpool) maintained that repeated peritoneal tearing was most unusual, as an investigation of his cases had never shown round-celled infiltration of the edges of tears. He strongly advised appendicectomy, as he regarded the appendix as a fruitful source of ectopic gestation.—Dr. BETHEL SOLOMONS spoke of the difficulty of diagnosis and the inconclusiveness of so-called tests for pregnancy. Diagnosis had to be made from general symptoms and sudden onset; even amenorrhœa was absent in many cases. He would rather operate on a kitchen table than move the patient.—Dr. FARQUHAR MURRAY mentioned referred pain in the upper abdomen and the importance of feeling for blood in the pouch of Douglas between a rectal and a vaginal finger. Ruptured ectopics revived remarkably if given a quarter of a grain of morphia and an hour or two's rest before operation.—Dr. W. FORDYCE (Edinburgh) said that rupture into the broad ligament was apt to be overlooked or mistaken for a retroflexed gravid uterus. The symptoms were pain and retention of urine, and it was impossible to define the uterus on examination. Palpation should be extremely gentle.—Prof. R. W. JOHNSTONE (Edinburgh) spoke of the acute pain produced by pressure on the posterior fornix.—The PRESIDENT remarked that ectopic gestation was often mistaken for ordinary abortion.

Dr. BETHEL SOLOMONS then read a paper on

Some Points in the Technique of the Low Segment Cæsarean Operation.

He said that the value of this operation was not recognised in some hospitals, and the technique should be standardised. No matter in what part of the uterus infection lay, the incision in the lower segment was safe. After describing his technique, and quoting illustrative cases, he said that the operation should be done on the patient who had been in labour some time and was not likely to deliver herself, and where the conditions necessary for pubotomy were not present. It allowed of subsequent trial-labour. It was also valuable in placenta prævia. In early labour where the baby was in danger, however, it had no advantage over the classic operation. The longer the labour had lasted and the higher the bacterial content of the uterus, the more advisable was the lower segment operation. The placenta should be delivered through the incision, and the abdomen should be drained for 48 hours in all suspicious cases.

Dr. G. FITZGIBBON spoke in favour of the lower segment section; it was bloodless and easy to suture. He had found that, where the head lay in the iliac fossa, it was not a case of bringing the head into the midline of the uterus, but of bringing the uterus into the midline of the abdomen.

Prof. MCILWRAITH, of Toronto, said that his clinic was turning from the high operation to the low, which had come to stay. He thought, however, that the classic section was admirably suited for placenta prævia.

Prof. J. HENDRY (Glasgow) agreed that the low operation was no good in placenta prævia, although excellent for cases long in labour.

Dr. BETHEL SOLOMONS, replying, justified removal of the placenta by consideration of the risk of catching it in suturing the wound and of adherent placentæ.

Dr. DOUGLAS MILLER (Edinburgh) then read a paper on

Failed Forceps Cases.

He reviewed a series of 500 emergency admissions to Edinburgh Royal Maternity Hospital; 74·6 per cent. were failed forceps cases, due chiefly to disproportion —contracted pelves or large heads. The pelvis was generally rachitic. In one type of case the trouble might not be recognised until the head had reached a low level and the possibility of Cæsarean section had

passed. Occipito-posterior presentations were a second common cause of difficulty—generally unrecognised. Forceps had usually been applied several times, and many patients had severe lacerations. In a third group there were no abnormalities; possibly they were cases of occipito-posterior presentation reduced during the journey to hospital. In the majority of cases, however, the forceps had apparently been applied before the head was moulded, through anxiety to save suffering. Dr. Miller stressed the significance of this series for prophylaxis. Whereas approximately one-third of them were seen by a doctor for the first time after the onset of labour, there had been but three failed forceps cases among 6000 odd patients who had attended the hospital antenatal department. Where moderate forceps traction failed to deliver, further action should be governed by four considerations: (1) What was the nature of the obstruction? (2) Was the birth of a living child per vias naturales possible? (3) If so, was immediate interference desirable or not? (4) If not, did the conditions warrant or forbid a Cæsarean section? There could be no hard-and-fast rule to determine between craniotomy and Cæsarean section when the child was dead. In conclusion, said Dr. Miller, this series showed the importance of antenatal care and routine measurements of the pelvis; the great danger of non-observance of the elementary rules of forceps application, particularly through an incompletely dilated cervix or in the presence of marked disparity; the necessity of recognising the nature and degree of the obstruction, and the remarkable capacity of Nature to overcome considerable disproportion by moulding. The condition rather than the number of hours passed should constitute the indication.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

WEDNESDAY, JULY 20TH.

THIS Section met under the Presidency of Prof. J. A. GUNN (Oxford). At the first session a discussion on

CLINICAL METHODS OF ADMINISTRATION AND THERAPEUTIC USES OF OXYGEN

was opened by Dr. H. WHITRIDGE DAVIES (Edinburgh) in the absence of Dr. E. P. POULTON (London).

Dr. Davies said that the need for administration of oxygen arose whenever the tissues were labouring under oxygen-lack. These conditions could be divided into three types: (1) anoxic, due either to lack of oxygen in the atmosphere or to impairment of gaseous exchanges in the lungs in pulmonary lesions; (2) anæmic, due to hæmoglobin deficiency; and (3) stagnant, due to impaired circulation. The untoward effect of all three conditions could be overcome more or less completely by the administration of oxygen, but the amount of oxygen required varied. In the anæmic and stagnant types it was necessary to increase the amount of oxygen in simple solution in the blood plasma. This could only be done by increasing greatly the partial pressure of oxygen in the alveolar air. If the subject inspired pure oxygen the amount of oxygen in combination with hæmoglobin would remain unaltered, but the amount in simple solution in the plasma would be increased to 2·2 volumes per cent., an amount sufficient to overcome the deficiency of oxygen in the tissues in some cases of anæmic or stagnant oxygen-lack. In the anoxic type such high alveolar pressure was seldom, if ever, necessary. Clinically, cases of pneumonia, pulmonary œdema, acute bronchitis, and other acute and chronic inflammatory diseases of the lungs fell into this category. Owing to inflammatory or œdematous thickening of the pulmonary epithelium oxygen passed into the blood less readily than normally, and increased partial pressure of oxygen in alveolar air was therefore required.

Dr. Davies went on to discuss the methods of administration in general use. The oxygen chamber was excellent when prolonged oxygen treatment was necessary, but its high initial cost, the necessity fo skilled supervision, and the danger of fire restricte its use to a few large institutions. Similar result could, however, be obtained by closed-circuit method of oxygen administration; he described various form of apparatus and showed how the percentage o oxygen given and the percentage in the alveolar ai could be calculated. Methods in which oxygen flo was automatically cut off during expiration were t be preferred for they doubled the efficiency obtaine with any given flow of gas. The ordinary tube an funnel method of giving oxygen, which was eve now seen in some hospital wards, was practicall useless.

The earliest method by which oxygen could b administered in a quantitative manner was that o Haldane, which merely had the disadvantage that was almost impossible to obtain an alveolar pe centage of more than 60. Such a high concentratio was, however, seldom necessary. A further di advantage was that the apparatus afforded no mean for determining the total respiratory volume pe minute, and unless this was independently obtaine it was impossible to calculate the alveolar air pe centage. In order to overcome this deficiency D A. R. Gilchrist and he devised a modified form o apparatus.[1] Precise knowledge of the alveolar a percentage was more than a mere academic nicet Not only was there the satisfaction of producing definite effect but also an estimate of the percentag of alveolar oxygen necessary to abolish the sympton of oxygen-lack afforded a quantitative indication the severity and extent of the pulmonary damag When not more than 40 per cent. of alveolar oxyge was needed—i.e., when the rate of oxygen flow wa not more than one-third of the respiratory volum per minute—the mask first used could be dispense with and a forked nasal tube could be used instea which was much more comfortable for the patien

The first criterion of successful administration wa the abolition of cyanosis; but since oxygen-lac occurred before the advent of cyanosis rather mo oxygen should be given than was necessary to aboli the cyanosis. The second criterion was the relief dyspnœa. Respiratory embarrassment was alway aggravated by oxygen-lack, but since it might be du to other causes it could not always be abolished b oxygen. The third was a fall in the pulse-rat This was probably the most reliable criterion an occurred even in normal people when increase percentages of oxygen were breathed. It was eve more marked in pathological cases. Oxygen therap in pneumonia resulted in diminution of restlessnes promotion of sleep, and tendency to lessened deliriu Delirium should be prevented by early administratio of oxygen for it could not always be cured by oxyge later. Very good results had been reported fro oxygen administration in war gas poisoning an chronic bronchitis and emphysema.

A paper by Dr. W. T. RITCHIE (Edinburgh) wa read in his absence by Dr. C. G. LAMBIE. All wh were engaged in the practice of clinical medicine wer he said, confronted daily with the problem anoxæmia in certain patients. Dyspnœa and cyanos were the chief clinical manifestations of this co dition. Dyspnœa preceded cyanosis and was ofte so urgent as to require immediate relief. Chron anoxæmia might interfere with functional efficienc and ultimately lead to structural changes in organ If dyspnœa and cyanosis were due solely to deficie oxygenation of the blood in the lungs, the deficienc might be met by adding oxygen to the inspired ai Unfortunately, the problem was not so simple nevertheless, this was the basis of oxygen therap The methods of administering oxygen were far fro satisfactory. The volume of oxygen delivered fro the cylinder was only approximately known; w knew even less about the amount inspired by th patient, while that which diffused into his pulmonar capillaries was largely a matter of conjecture. Th

[1] THE LANCET, 1925, i., 916.

mount given must be ample—not less than 2 litres er minute. Oxygen was rapidly absorbed and pidly consumed, so any good effect derived from xygen therapy was extremely evanescent. The xygen should be given as continuously as possible. e recommended a moulded glass mask which he und less irksome than either an oral or a nasal ube. Haldane's apparatus was economical and liable.

Oxygen therapy relieved dyspnœa and cyanosis in me patients. In others it was of no value, probably ecause in these the free entrance of oxygen into the veoli was prevented. In other cases it failed ecause the dyspnœa was due to a pathological crease in metabolism as in hyperthyroidism. xygen was of no service in anæmia because of the ck of hæmoglobin to transport it. The dyspnœa of abetic coma and the terminal phase of renal disease ere not due to lack of oxygen, and could not be lieved by its administration. Cheyne-Stokes breath-g could, however, be relieved by either oxygen or rbon dioxide. Dyspnœa was sometimes a symptom an hysterical attack, and CO_2 relieved this con-tion but not oxygen. In the treatment of circu-tory failure oxygen played a minor part. He used in the later stages but found it of most benefit hen intense dyspnœa had begun suddenly and cently, as in the early phase of auricular flutter, roxysmal auricular fibrillation, and paroxysmal chycardia.

It was in disease of the respiratory system that e need for oxygen therapy was greatest. Here the noxæmia might be due to two factors: (1) the ssening of the volume of air entering the bronchioles, ; in tracheal compression and bronchial asthma; nd (2) interference with the diffusion of oxygen rough the alveolar walls into the pulmonary pillaries, as in acute pneumonia and pulmonary mphysema. In emphysema oxygen afforded more lief than was attainable by any other means. xygen was especially helpful in pneumonia. Every neumonic patient was dyspnœic, but he did not ecessarily need oxygen. The indication for oxygen as cyanosis. The faintest trace was a call for xygen, and the call became urgent when the cyanosis as pronounced. It should be given freely and as ntinuously as possible, and was of more value in ute lobar than in broncho-pneumonia. Anoxæmia as, however, only one factor in pneumonia; in rofoundly toxic cases oxygen was of no avail.

Dr. REGINALD HILTON (London) compared various ethods as measured by their power of raising the rcentage of oxygen in the alveolar air. He regarded e tube and funnel method as absolutely useless if e funnel was held 10 cm. away from the mouth. he efficiency of the nasal catheter was manifestly ss than that of the mask, but for ease and con-enience it was the best. Analyses of arterial blood ere quoted in two cases of pneumonia, which showed at by the nasal catheter even low rates of oxygen ow were able to raise the arterial saturation. The asal catheter was the best to use in general practice, nd should be employed as a routine in pneumonia, which disease it was in many cases the most nportant therapeutic agent we possessed. The xygen should be turned on before the catheter was nnected to the cylinder, and the flow should be as pid as was consistent with the patient's comfort. r. Hilton showed a new mouth mask which, he said, ave better results than could be obtained with the aldane apparatus. The nares were closed with tton-wool. He claimed that it was more comfortable an the face mask.

Dr. C. H. GREEN (Mayo Clinic, Rochester, Minn.) ad been associated with Dr. R. M. Wilder in the mparative study of different methods of oxygen dministration. The oxygen chamber was most fficient for the control of anoxæmia, but it was very xpensive. An excellent substitute was the bed nt, a canvas cloth with an isinglass window which tted over the head and arms of the patient. It ontained an absorber to take out CO_2, there was a motor (the motor being outside the tent to obviate danger of fire) to keep up the circulation of oxygen, and ice to cool the atmosphere. 30–40 per cent. of oxygen was easily maintained in the tent, and with this amount it had been found possible to control cyanosis in broncho-pneumonia, post-operative pneumonia, and pulmonary embolism, which were the conditions of which he had most experience. In pneumonia the effects of oxygen therapy were lowering of the pulse-rate and temperature, the latter dropping 1–4°. In pneumonia there were more factors than simple anoxæmia, and the relief of cyanosis was of no avail if the patient was dying of septicæmia. He thought that the relation of the fall of temperature after oxygen administration to the immunity processes should be worked out.

Prof. C. W. GREEN (Missouri) said that he had studied the question of oxygen-want from the physiological angle. He wished to emphasise what Dr. Ritchie had said, that oxygen therapy cannot be intermittent but must be continuous till the crisis had passed. It was dangerous to give it in a crisis and then to interrupt its administration. The physiological reactions brought about by giving oxygen were very complicated. If oxygen was gradually decreased, without increasing the CO_2, from the normal level to the stage of oxygen-want, there was a rise in blood pressure and an increase in respiration rate and volume up to the crisis, when respiration failed and the blood pressure fell rapidly. If, when this crisis was approaching, oxygen was given, the heart-rate, blood pressure, and respiration were restored to normal; but if the oxygen was then stopped the severest stage of the crisis immediately returned. In pneumonia the patient could not stand the shock brought about by withdrawal of oxygen given therapeutically.

The PRESIDENT (Prof. J. A. GUNN) then read a paper on

Expectorants.

He said that in the course of the last decade there had been notable advances in nearly every department of therapeutics, but in one subject—namely, expectorants—not much progress had been made in the last 10, 50, or even 100 years. Hardly any experimental work had been done on expectorants, and only one or two papers had appeared. He had examined text-books from all countries, and had found they contained mostly repetitions from those of 90 years ago when Christison wrote.

One of the difficulties lay in measuring the secretion from the bronchi and the impossibility in patients of separating it from salivary secretion. A physiologist had recently told the speaker that he had taken large doses of ammonium chloride and had been unable to observe any increase of bronchial secretion in himself. But in a normal person it was not easy to observe increase in secretion. On the other hand, in a person with dry bronchial mucous membrane a very slight secretion became immediately noticeable. In animals the difficulty was not so great. Pieces of absorbent paper were placed on the trachea and the secretion measured by weight. Here, however, the experiment was complicated by the anæsthetic, which in itself produced secretion, and by the fact that different animals reacted in different ways and that the secretion was different in normal and pathological conditions. He wished to make an appeal to clinicians to devise some method of measuring bronchial secretion.

Prof. Gunn then referred to the physiological methods of clearing bronchi. There was a motor and a secretory mechanism. The former was rather complicated. Cough only cleared the trachea and upper bronchi. More important was the movement of the cilia. As a student he had thought it a myth, but now he regarded ciliary movement with profound respect. By means of the ciliograph the movement could be measured. A small piece of ciliated epithelium could be made to move quite a large drum. It would propel solid particles at the rate of at least 1 inch a minute. Therefore it took less than half an hour

to move anything from the depth of the bronchi to the upper air passages. A small portion of the bronchi near the alveoli had no cilia. Possibly this was the reason for the occurrence of bronchiolitis. Another possible mechanism for clearing bronchi was peristaltic movement of bronchial muscle.

The classification of expectorants was most unsatisfactory. Hitherto they had been classified either according to the place where they were supposed to act or according to whether they were sedative and stimulative. For the latter classification there was no justification. Prof. Gunn divided them according to whether their modification was: (1) Reflex, through gastric irritation—tartar emetic, ipecacuanha, senega, squill, potassium iodide, alkalies. (2) Central —apomorphine (emetine). (3) Stimulation of secretory vagal endings—pilocarpine. (4) Stimulation of glands during excretion—potassium iodide, ammonium chloride. He then discussed the action of the various drugs in detail. Ipecacuanha acted better in children than in adults, and was valuable in acute diseases possibly because it had a tendency to lower temperature. Probably it got its reputation on account of this. If the doses were pushed till nausea supervened the expectorant effect was much more powerful. This raised the question whether the stimulus went only to the secretory fibres or to the broncho-motor fibres of the vagus as well. Senega acted in the same way as ipecacuanha; there was no reason for regarding it as a stimulant expectorant and ipecacuanha as a sedative. Squill might come into a different category, but it was first used as an emetic, then as an expectorant, and only later was its cardiac action realised. Its effect was explained by reflex action from the stomach. It also had a central emetic action. Probably it had a more prolonged effect than ipecacuanha, but this had not been accurately measured. Physicians in the seventeenth and eighteenth centuries had a great respect for squill, probably because it was given in large doses and had an effect on the heart. Potassium iodide was a very valuable expectorant, especially in the chronic bronchitis of adults. It acted both reflexly from the stomach and directly on the glands of the mucous membrane. Regarding ammonium chloride there was great divergence of opinion. Some text-books said it increased secretion, some that secretion was diminished, and others that secretion was increased in large doses and diminished in small doses. Clinically it acted as an expectorant. Intravenously it had no effect except in very large doses.

Dr. WHITRIDGE DAVIES said that from personal experience he could say that ammonium chloride acted as a gastric irritant.

Prof. F. J. MCDOWALL (London) said that observations with the bronchoscope showed that there was complete closure of the bronchi during expiration; therefore the bottom part of the bronchi would be squeezed clear with each expiration.

Prof. O. S. GIBBS (Halifax, Nova Scotia) asked whether, if the bronchial tree was emptied by peristalsis, the action of adrenalin would not be to prevent this?

Prof. RALPH STOCKMAN (Glasgow) spoke of the observations of Christison. Many drugs could only be studied in disease, and expectorants belonged to this category. It was difficult to study them satisfactorily in animals. The method of taking up expectoration with blotting paper was too crude to be of value. Many patients with bronchitis had a degenerated mucous membrane and in them drugs would have quite a different action.

THURSDAY, JULY 21ST.

This Section met on the second day to discuss the

THERAPEUTIC USES OF CALCIUM SALTS.

Prof. F. R. FRASER (London) said that an understanding of the indications for administering calcium in disease was made more difficult by the fact that calcium was always present in the body. The serum in health contained about 10 mg. per 100 c.cm., and the amount was remarkably constant. This constancy pointed to some mechanism which maintained a balance between absorption, elimination, and deposition. Only a small proportion of ingested calcium was absorbed, and most of it was passed in the fæces. Elimination of absorbed calcium was by excretion into the digestive tract and to a slight extent in the urine. Certain facts concerning the functions of calcium were well established, others were still vague. Calcium was essential for the clotting of blood and for the proper contraction of heart muscle, and was an essential constituent of bone. Low calcium content of the serum was associated with neuromuscular disturbance and tetany. It also played an important part in the balance of ions in the tissues and fluids of the body. A balance between calcium and magnesium ions and between sodium and potassium ions had been demonstrated in normal life, and the part played by calcium in spasmophilia and tetany must be viewed as exercised through this balance of ions as well as by calcium specifically. Balance also existed between acid and basic ions by which pH was kept constant. Further a balance must exist between the Ca ions and the PO_4 ions and the solubility of the $Ca_3(PO_4)_2$, so that the product of ionic concentration could not rise above a certain level. An increase in the product caused a deposition of solid $Ca_3(PO_4)_2$, and a diminution resulted in the passage of the solid substance from the bones into solution in the body fluids.

The amount of total calcium in the serum was used as an indication of the calcium supply in the living body. It might occur in different states of chemical combination—viz., a non-diffusible fraction combined with protein, a diffusible and easily ionised fraction (about 50–60 per cent. of the total), and an ionised fraction variously estimated as 20–25 per cent. of the total. In considering the significance of departures from the normal values for the calcium content of the serum, it was important to remember that they might affect any of these fractions. Until simple and accurate methods were devised for estimating the available calcium in the blood, its therapeutic uses could not be placed on a satisfactory basis.

Indications for Calcium Therapy.

Nephritis.—The total calcium of the serum was definitely reduced in severe nephritis. In the form with pronounced œdema there was reduction also in the serum proteins. L. Blum and his co-workers had advocated the administration of calcium chloride for the purpose of diminishing the œdema, and in his hands, and in those of many others, it was proved to be an efficient diuretic in many cases. Its action was not due to a specific action of calcium and the restoration of the serum calcium to a higher level. It would appear that it acted by the change that resulted in the balance of ions in the body fluids either (Blum) by increasing the calcium ions, thus decreasing the sodium ions, or by releasing the chlorine ions, thus increasing the acidity, and the excretion of sodium as sodium chloride accompanied by large amounts of water. The latter explanation was supported by the similar beneficial action of ammonium chloride or nitrate. In severe cases of azotæmic nephritis the serum calcium was definitely reduced, and this reduction was accompanied by an increase in the inorganic phosphorus of the serum. No clearly beneficial results had been reported in the form of nephritis by the administration of calcium.

Tetany.—Post-operative tetany was specifically due to the low calcium content of the body fluids, and could be relieved by raising the calcium content. The administration of extracts of the parathyroid glands was able to raise the calcium content of the serum and relieve the tetany. The oral administration of calcium salts in excess could raise the level of calcium in the serum and might relieve tetany, and intravenous administration gave prompt but transient relief. In tetany and spasmophilia accompanying rickets the serum calcium was low. The use of parathyroid extract in rickets was contraindicated except as an emergency, since the increased serum calcium was

tained by the removal of calcium from the bones ich were already deficient in it. The administra- n of calcium salts and cod-liver oil would suffice raise the calcium in the serum to a normal level, t such measures as exposure of the patient or of e patient's food to sunlight or ultra-violet light ght be all that was necessary for the proper treat- nt of the rickets and the relief of the spasmophilia. With regard to other conditions, Prof. Fraser said at low values for serum calcium had been reported various skin diseases, but there was no evidence at deficiency of calcium was of significance in the thology of the disease, and no clear evidence that sing the calcium influenced the course of the ease. Confirmation of the value of calcium erapy in the many and various diseases associated th chronic infections, as found by H. W. Vines d W. R. Grove, was necessary before the scope of lcium therapy could be accepted as embracing e conditions enumerated by them. It was also ficult to accept the evidence available as proof of e value of internal calcium therapy to control morrhage. Blum had shown a powerful diuretic tion of calcium chloride in cardiac œdema. That monium chloride acted in a similar manner ggested that it was the acid property of these ts which was responsible for their action as a uretic, although calcium might have an effect in e same direction by its antagonistic action to dium. The beneficial therapeutic effects of the use calcium chloride in different exudates and trans- ates had been variously reported, but convincing idence was needed that such beneficial actions were e to calcium.

Prof. Fraser then discussed methods of administering lcium, but concluded that indirect methods of fluencing the calcium in the body might be of greater actical importance than the administration of its lts.

Discussion.

Dr. L. G. PARSONS (Birmingham) confined his marks to the effect of calcium in children. It was t necessary to give calcium salts medicinally in der to produce calcification of bone, because the et of a young child contained enough calcium to pply the requirements of the body if absorption as normal. He never prescribed calcium salts cept in tetany. If ionic calcium in the blood was minished tetany would occur, but spasmophilic anifestations might appear under certain circum- ances with an undiminished blood calcium. Pyloric enosis in infants furnished examples of this; in me cases convulsions occurred and recurred and oved fatal, or, shortly after the Ramstedt operation, e child showed a period of apnœa followed by deeper eathing and convulsions. The condition was one alkalosis, and resulted from loss of chloride ions ue to repeated vomiting and high intestinal obstruc- on. In this alkalosis, although the calcium in the rum was normal or higher than normal, the ionic lcium was diminished. On the other hand, in vere azotæmic nephritis, in which the serum lcium might be low, tetany did not occur, ecause there was an acidosis which resulted in more the calcium being ionised. The therapeutic oblem was chiefly how to maintain the ionic calcium such a level that the specific effects of low calcium ould not occur. Dr. Parsons then referred to the uestion of calcium concentration in nephritis and eliac disease. What were the factors concerned in ie absorption of calcium from the alimentary tract, id how could absorption be increased? It had been own that whilst excessive amounts of calcium in ie diet tended to increase its total absorption and tention, they impaired phosphorus retention and ice versa. The retention of one element in the testine by an excessive amount of the other was xplained by the formation of insoluble calcium hosphate. To obtain the maximum absorption of oth they must be properly balanced in the diet; ie calcium should exceed the phosphorus. In ildren one pint of milk daily would meet this require- ment. Another important factor was the presence of fat in the diet. Low calcium retention was found both when there was insufficient fat intake and when large quantities of fat remained unabsorbed in the intestine, as in cœliac disease. The influence of fat on calcium was due to the vitamin D in it. It had been suggested that increased acidity in the upper part of the intestinal tract would increase the absorption of calcium, but this was not entirely borne out by his observations. It appeared that the absorption was not facilitated by the increased acidity per se but by the presence of vitamin D, which itself led indirectly to increased acidity in the intestinal tract.

Mr. C. P. STEWART (Edinburgh) said that Dr. Parsons's clinical observations were borne out by biochemical research. Acidity was a very important factor in the absorption of calcium, at any rate in normal persons. Calcium could only be absorbed after being broken down into Ca ions. If it was given with a protein meal it was ionised by the hydrochloric acid of the stomach and absorbed; if it was given on an empty stomach there was not enough acid and the absorption was poor. If the reaction of the intestine was alkaline, insoluble soaps and calcium carbonate were formed. A distinction had to be made between absorption and retention. Absorption was often normal but the calcium was immediately re-excreted into the large intestine. Retention was associated with vitamin D. Parathyroid hormone was capable of raising serum calcium but it did not increase its absorption. He had obtained the same rise of serum calcium after parathyroid when the whole alimentary canal had been removed from the animal. In further experiments he had isolated and washed out the large intestine and estimated the excretion of calcium after three hours. He then gave parathyroid extract and the same amount of calcium was excreted. It was clear, therefore, that the increased calcium in the serum could only have come from the tissues and ultimately from the bones. Parathyroid was of no therapeutic value in raising absorption but led to depletion of bone calcium. Calcium in the blood was in a partly ionised, partly non-ionised, and partly diffusible form. Our knowledge concerning these forms was vague and it was by no means certain what part ionic calcium played in blood coagulation.

Dr. G. H. PERCIVAL (Edinburgh) said that calcium was intimately associated with cell lipoids. He discussed its action in relation to cell chemistry. Normally there was a very efficient control for keeping calcium constant in the blood. But although symptoms appeared when calcium was diminished, it could be increased by 50 per cent. without any symptoms occurring. During pregnancy and lactation the mother frequently suffered from a deficiency of calcium. A liberal supply of calcium was indicated. Nevertheless, osteomalacia was not affected by giving calcium. In osteitis fibrosa the disease was associated with tumour of the parathyroid. Defence mechanisms were impaired by low blood calcium, but in practice in septic cases the serum calcium was generally normal.

Prof. L. BLUM (Strasbourg) had studied the diuretic action of calcium salts. He showed charts of different cases, the first being one of idiopathic œdema. A salt-free diet with any of the ordinary diuretics had no effect on the condition. If sodium chloride was given the œdema increased. Calcium chloride and calcium lactate produced diuresis and loss of weight, provided that a salt-free diet was maintained. In the presence of sodium chloride, calcium salts had no effect. Calcium chloride was also effective in cases of chronic nephritis with œdema, in the ascites of hepatic cirrhosis, and in inflammatory exudates such as pleural effusion. In the latter there was a fall in temperature during calcium administration. Prof. Blum described a condition which he called dry chloride retention. Essentially, it was an alteration between the balance of sodium, carbon dioxide, and chlorine, and was characterised by a high chloride and low sodium content of the serum. It could be

produced by giving calcium chloride. Its symptoms were dryness of the throat, thirst, and weakness. In this condition it was dangerous to give calcium chloride for then acidosis supervened. To obtain a therapeutic effect it was necessary to give large doses—e.g., 5 to 10 g. Unfortunately, the drug was unpleasant to take and it induced vomiting, diarrhœa, or constipation, but no other calcium salt could replace it.

Dr. G. C. LINDER (London) gave the results of some studies on cases of tetany. Tetany was a syndrome produced by various means. It was associated with deficient parathyroid secretion, and low calcium and high bicarbonate content of the serum. Loeb had been the first to discover that neuromuscular irritability depended on sodium and calcium ions. In tetany the sodium in the serum remained fairly constant, but the calcium altered. After discussing fully the theory of tetany he gave the results of treatment in a number of cases. The charts of a case of postoperative tetany were shown and indicated the difficulties met with in a case which at first sight might have appeared simple.

Dr. N. C. F. BURGESS (London) had studied calcium metabolism in various types of skin disease. He described a method for estimating calcium in the blood, and distinguished between that obtained by analysis of the ash and that estimated by direct precipitation in the serum. Pathological cases fell into two categories: (1) those in which the total calcium was normal but the precipitated calcium was diminished, (2) those in which both were diminished. He criticised the results of Percival and Stewart because they worked only with precipitated calcium. His results confirmed the work of Vines. He analysed 67 cases of skin disease, in many of which, especially those of urticaria and dermographia, the serum calcium was low and calcium therapy was effective.

Dr. C. G. LAMBIE (Edinburgh) gave an account of calcium metabolism in osteitis fibrosa, a disease characterised by rarefaction of the bones and the occurrence in them of giant-celled tumours, and by hypertrophy of the parathyroids. The blood showed hypercalcæmia of 17 per cent., slightly low inorganic phosphorus, normal urea, and chlorides, normal coagulation time, and CO_2 combining power increased by 5 per cent. There was enormous output of calcium in the fæces and a negative calcium balance.

Dr. MYERS spoke of calcium in relation to nephritis.

The PRESIDENT (Prof. J. A. GUNN) asked whether calcium altered the diffusibility of membranes. He cited some experiments of his own in support of the hypothesis that it did.

FRIDAY, JULY 22ND.

The subject of discussion on the third day was

THE ACTION AND USES OF OVARIAN EXTRACTS.

Prof. W. E. DIXON (Cambridge) said that the subject was still sub judice. The ovary, all were agreed, was an organ of internal secretion. If it was removed the animal or human being at once lost its characteristic sex cycle which could be brought back by transplanting a suitable piece of ovary. Twenty-four instances of pregnancy occurring in women after complete removal and retransplantation of ovaries had been reported. The ovarian gland was specific for sex. If it was grafted into a spayed female the œstrus returned and so did the sexual characteristics. In the male, female characteristics appeared, the animals became feminised, and some of the features of œstrus were produced. The growth and function of the ovary was dependent on more than the ovary itself. Something in the body caused the ovary to become active. If a mature ovary was grafted into a young animal it did not function, but if an ovary from a young animal before puberty was grafted into an adult animal it developed and functioned. It could therefore be accepted that the ovary was an organ of internal secretion; the question was how far could that secretion be replaced by artificial extracts?

The ovary differed from other glands because it functioned in a cyclic manner. The corpora lutea underwent stages of development, full functional activity, and regression. Owing to the difference between a degenerate corpus luteum and a growing one extracts of ovary prepared during œstrus and during quiescent periods might give different results. Ovarian therapy had been disappointing for various reasons: (1) the extract might have been taken haphazard from any kind of ovary; (2) physicians gave the extracts in so many different ways; (3) extracts of ovary supposedly containing three different substances were on the market. The first of these substances was œstrin, a definite substance prepared from the ovaries of animals by treating them with lipoid solvents. It had not yet been obtained in pure form, but injected into animals it produced effects leading to œstrus or menstruation (the two were not homologous). It was sold under various names and was prepared principally from the placenta. It was said to be present also in the corpus luteum and was found in the blood of pregnant women after the fifth month and in pregnant animals. Injected into animals it produced development of the sex organs, growth of the uterus, and artificial œstrus. If injected before puberty it was said to lead to œstrus. In order to study the substance and to compare different samples it was necessary to have some method for quantitatively determining its activity. There were three ways of doing this. The vaginal smear method for which rats and mice were used consisted in removing the ovaries, making sure by the examination of vaginal smears that periods of œstrus were no longer occurring, and then injecting the drug and finding the minimal amount which would produce œstrus. The objection to the method was that it was possible to get both positive and negative results with the same sample, and also that the effect was not quite specific for the same result could be got with orchitic extract. The second method was to inject the extract into very young rabbits and watch the development of the uterus. Marked hypertrophy occurred with œstrin. Thirdly, isolated organs showed increase in conductivity of the muscle wave, but many other substances also had this effect. Clinically use of œstrin was indicated when effects leading to menstrual function were required, but so far its use in human beings had not been satisfactory.

The second ovarian substance was obtained from the corpus luteum. In a pregnant animal if the corpus lutea were removed the animal aborted. The experiment was done on rabbits, dogs, and goats in Cambridge, and all but one goat aborted. Afterwards it was shown that one corpus luteum had not been removed from the goat. The injected extract inhibited the period of œstrus; therefore it was the lutein substance which was really responsible for the sexual cycle. So long as the corpus luteum governed the ovary there was no œstrus; when the corpus luteum degenerated the œstrus was released. Persistence of the corpus luteum led to sterility. In support of which view Prof. Dixon quoted Raymond Pearl's experiments on laying fowls; corpus luteum extract was injected into laying fowls and they ceased producing eggs till the injections were stopped.

For the third extract Prof. Dixon was himself responsible. If a watery extract of the ovary was made at certain periods—i.e., in pregnancy, especially just before parturition, and, to a slight extent, during menstruation—its injection was followed by secretion from the posterior lobe of the pituitary body into the cerebro-spinal fluid. Changes in the pituitary gland were closely associated with pregnancy. In a man the organ weighed 0·6 g.; in a nullipara it also weighed 0·6 g.; in a primipara the weight increased to 0·8 g. and the increase was permanent; in a multipara the average weight was 1·1 g. The posterior lobe of the pituitary had a specific effect on the uterus—it provided, in fact, the normal stimulus to contraction of the uterus. This was the most important function of the pituitary, and its secretion could be tested for in the cerebro-spinal fluid. With Prof. F. H. Marshall he had detected it in many experiments in which extracts made from the ovary at these special times

were injected into animals. In human subjects it was found that cerebro-spinal fluid taken from women during Cæsarean section produced labour when injected into other women in whom labour had not yet begun. A pregnant rat or mouse when injected with œstrin aborted up to the fifth day. Large doses were needed to effect this on the fifth day, and after that time no abortion was produced. Pituitrin in the early stages did not produce abortion, but it acted more and more easily as pregnancy went on. Finally, a very small dose was sufficient to start labour. In this way it could be explained why the uterus carried its burden for so many months and then emptied itself.

Miss KATHARINE H. COWARD, D.Sc., spoke on the

Standardisation of Ovarian Extracts.

The method proposed for the assaying of the œstrin-content of ovarian extracts was based, she said, on the œstrus-producing property of that substance. The œstral cycle, recurring generally at five-day intervals in the normal rat or mouse, was inhibited completely when the ovaries were removed. It could be induced in such a rat by the injection of an ovarian extract from apparently any other species of animal. The response to injections varied very widely in different rats, some of them failing to respond to a dose of extract which was as much as ten times the amount effective in other animals.

To obtain a "curve of response," 90 rats were ovariectomised, and each one was given subcutaneous injections of 2·5, 7·5, 12·5, and 17·5 mg. of a particular extract at intervals of 14 days. The result was plotted as percentage response against dose, and gave a flat S-shaped curve. Then a dose of 10 mg. of the same extract was given to each of the 90 animals. The percentage response fell on the theoretically correct place in the curve, which indicated that the extract had not deteriorated in value, or had the rats become less sensitive. Half the rats were then given 10 mg. of the same extract again subcutaneously, the other half 10 mg. intraperitoneally. There was practically no difference in the percentage response of the two groups. Neither was an injection in three parts more effective than a single injection of the whole amount (10 mg.). About the same time 70 mice were ovariectomised and given exactly similar doses. The curve of response fell exactly on that for the rats.

This result, said Dr. Coward, was very remarkable, and indicated that the dose required was independent of the body-weight of the animal, which is also evident from the results on individual rats. It was also surprising that rats which responded to a certain dose did not always respond to a higher dose. It was proposed to adopt as the unit of œstrin that amount of a preparation which would bring about a response in 50 per cent. of the animals tested, 20 animals being used in a test. By referring the response attending any given injection to the standard curve the bulk that would contain enough œstrin (1 unit) to bring about a 50 per cent. response would be found, and thus the sample could be assayed.

Experimental and Clinical Results.

Mr. A. S. PARKES, D.Sc., had sterilised mice by means of X rays and had destroyed the follicles and the corpora lutea; nevertheless periods continued. Therefore the cycle was not dependent on Graafian follicles or on corpora lutea. Œstrin had originally been isolated from the liquor folliculi, but it was also present in the placenta. In pregnancy the corpus luteum had a definite action, inhibiting ovulation and menstruation. In testing extracts of corpora lutea for inhibition of œstrin it was found that some produced œstrus. Further research had shown that the œstrus-producing substance was only found in the fluid in hollow specimens of cow's corpora lutea which was derived from the liquor folliculi. With regard to Pearl's hens, they had stopped laying because they died, killed by the toxic extract. Experiments for the removal of corpora lutea during pregnancy were vitiated by the shock attending the operation, to which the subsequent abortion might well be due. To avoid this he used mice in which one ovary was sterilised by X rays and the other was sound. At various stages of pregnancy he removed one or other ovary. Animals in whom he had removed the non-sterilised ovary all aborted. The sterilised ovary contained no corpora lutea. Degeneration of the corpus luteum brought on parturition. The corpus luteum was also responsible for the development of the mammary gland. Up to two years ago, however, no extract of corpus luteum had been made which produced any action whatever. The œstrus-producing hormone had been available for some years. At least two kinds of cells went to the making of the corpus luteum, so that it probably produced more than one type of secretion. The problem was growing very complicated. They now to all appearance had five types of ovarian secretion: a sex-producing hormone, an œstrus-producing hormone, two produced by the corpus luteum (only one of which was definitely known), and a substance producing parturition.

Dr. W. R. ADDIS (Manchester) spoke of the clinical results of ovarian therapy. He had used ovarian hormone without corpus luteum to induce labour, and had had some gratifying results, but also many disappointing ones. At St. Mary's Hospital, Manchester, he at first had only two successes out of 11 cases, but with improved methods of administration he succeeded in four out of five cases. All of these patients were elderly primiparæ, their average age being 35, and labour was long. He gave on an average 4·5 injections of 1 c.cm. of the extract. Contractions began ten minutes after injection and closely resembled those of the first stage of normal labour—i.e., there was contraction and retraction of the upper segment and relaxation of the lower uterine segment. The first point of interest was that for a long time there was no consciousness of the contractions on the part of the patient. Later she was conscious of contractions, but there was no pain. Pain only began when the presenting part met with obstruction at the cervix, and of course during dilatation of the perineum. This was exactly what happened during labour in animals and in savage races. There was a lack of feeling of tension over the abdomen. On vaginal examination there was absence of marked tension on the fornices during contractions. At first the cervix did not dilate; as soon as it did so the patient became conscious of contractions. Tension must, of course, be present, but was not so great as that usually described. The speaker drew a comparison between normal labour and intestinal movements. Labours induced by ovarian extract approximated to those seen among uncivilised races. He was convinced that the action of ovarian hormone on the uterus was specific and that it worked directly through the autonomic system. Pituitary extract acted directly on the muscle-fibres, and it was difficult to conceive of a substance acting on muscle which would produce the complicated balanced action of labour. His experiments on decerebrate cats in which the pituitary had been removed showed that injection of ovarian extracts produced regular contraction of the uterus.

Dr. THEODORE HAULTAIN (Edinburgh) said that whenever both ovaries were removed he put the patient on ovarian extract made from the whole ovary. He had sent out a questionaire to patients on whom he had operated during the last five years and had received 31 replies. A table compiled from these showed that there had been far fewer complaints of obesity, depression, flushes, headaches, and nervous symptoms among patients who had received ovarian extract. In his experience the results of removal of the ovaries for chronic salpingitis were far worse if the uterus was left than if it was removed with the ovaries.

Dr. KENNEDY remarked that he had collected literature on ovarian medication. It was hard to judge of its efficacy because of the multiplicity of methods adopted and the different preparations of ovaries in all stages of development that were given. He did not agree with Dr. Parkes that there had been no active preparation of corpus luteum until two years ago. Dr. C. J. Hertz had given an extract of it intravenously in pernicious vomiting with very good

results. He himself had produced an extract which he used for experiments on rabbits. The water-soluble extract inhibited ovulation. If ovulation was inhibited for from three to five months atresia of the follicles followed. The œstrus which sometimes occurred after injection of corpus luteum was due to the liquor folliculi often present in cysts in the corpora lutea of cows from which the extract was generally made. If the corpora lutea, when taken out of the body, were chopped up and washed in ice-cold water the œstrin was got rid of. He wished to ask Prof. Dixon about the relation of pancreatic secretion to pituitary and ovarian secretion. When the corpus luteum was removed there was a diminution in the number of islets of Langerhans, and with development of the corpus luteum they increased. The blood-sugar curve ran parallel to the ovulation cycle in birds and probably also in mammals. He asked Dr. Parkes for further details on the cells of the theca and the membrana granulosa in the composition of the corpus luteum, since the type of cell varied in different species of animals.

Dr. CAMPBELL could not help wondering, after listening to the discussion, why the male had dared to develop a posterior lobe to his pituitary. He and Dr. Scott had investigated the question of the action of œstrin with regard to blood-sugar. The injection of œstrin had no effect on blood-sugar whether injected alone or with or before insulin. The watery extract of ovary had also no inhibiting effect on insulin.

Prof. C. W. GREEN said that Dr. E. Allen, working with monkeys in Missouri, had removed one or both ovaries. With the follicular extract he had been able to re-establish menstrual flow in animals deprived of both ovaries. When the follicular fluid was injected there was a considerable growth of the mammary gland, which showed that the corpus luteum had nothing to do with this phenomenon.

Prof. DIXON, in reply, said that Dr. Parkes had made it clear by his experiments that in the mouse the corpus luteum was essential for the continuation of pregnancy. He agreed with Dr. Addis's facts but not with his conclusions. Dr. Addis had in reality described the typical action of pituitary. Its action was to increase the irritability of the uterus, so that the slightest stimulus produced an effect. It was only when doses far in excess of physiological amounts were used that it had a direct action on muscle. Ovarian extract had no action on the autonomic nervous system. In reply to Dr. Campbell he said that all the endocrines worked together, but there was antagonism between pituitary and insulin. The easiest way to get pituitary secretion was to reduce the blood-sugar. He paid tribute to the work of Allen and Doisy, who were the pioneers in the standardisation of ovarian activity.

Prof. D. MURRAY LYON then read a paper on the Action of Digitalis, in which he gave a statistical study of the effects of digitalis in patients with fibrillation, cardiac cases with no fibrillation, and normals, and showed some of the variations of its action in the three classes.

EXHIBITION OF DRUGS, SURGICAL INSTRUMENTS, FOODS, AND APPLIANCES.

IN the last issue of THE LANCET we briefly noticed some of the more important exhibits at the trade exhibition held at Waverley Market Hall from July 18th–22nd. Hospital and Laboratory Equipment, Books, Spas, and Miscellaneous Exhibits are now dealt with.

HOSPITAL AND LABORATORY EQUIPMENT.

[47] Hoskins and Sewell, Ltd. (Bordesley, Birmingham), had a new "Sunderland" bed with the patent castor pad action, worked through the ordinary four legs; a new silent sliding-side-rail cot, a long, narrow cot as used at Alton, a new cot-bassinett with let-down side rails, and a very light, stron "Dudley" road-wheeling ward screen made through out of welded tube without nuts or screws. Thei all-in-one ward locker combines drawer, cupboard seat, and extending table, and they are the designer of the "Alton" sunshade.—[118] Lawson Tait Bed steads (Whitfields Bedsteads, Ltd., 109–125, Watery lane, Bordesley, Birmingham) showed the improve cardiac bedstead as made for University College London, a child's cot with improved wheeling arrange ment and drawer, the Lawson Tait head and kne rest bedstead for the Fowler position, the Pearso fracture bedstead, and other hospital apparatus.— [117] Baird and Tatlock (London), Ltd. (14–15, Cross street, Hatton-garden, E.C. 1), showed all kinds o bacteriological and medical apparatus, made in thei own factory, especially a new wide-range contro incubator, from room temperature to 80° C., and th new Sinclair Mills apparatus for automatically stainin slides.—[119] Messrs. Chas. Hearson and Co., Ltd (Hope Works, 68, Willow-walk, Bermondsey, S.E. 1) showed many pieces of apparatus, including a nev high power binocular microscope by Reichert, capillary microscope, an epidiascope, a new dark field condenser with built-in source of light, rotary encased rocking microtome with automati transporter and section conveyor adjustment fro 1 to 25 μ, and an optical bench, for transmitted an opaque objects, with cinema attachment. Hig speed centrifuges with capacities from 10–500 c.cm buckets and speeds from 3000 to 10,000 r.p.m. wer demonstrated.—[90] Ogilvy and Co. (20, Mortime street, W. 1), agents for E. Leitz, Wetzlar; Coupri Lyons; and Frank and Heidecke, Brunswick, showe a complete range of research and routine instrument including new Leitz microscopes, new fine adjust ment slides with ball bearings, micro-camera attach ments, interchanging mono- and bin-ocular bodie hæmocytometers, &c.

X Ray and Light and Heat Apparatus.

[74] Philip Creswick (132, Wellington-stree Glasgow) showed various accessories for X ray an ultra-violet light work; a 30 m.a. set by the Solu Electrical Co., comprising high tension and Coolidg filament transformers on an all-metal control table on a trolley, forming a compact movable set. Othe exhibits were a new non-corrodable and solderles filmhanger and a seriascope for duodenal exposures —[89, 92] The British Hanovia Quartz Lamp Co., Ltd (Slough, Bucks), showed lamps for ultra-violet therapy Special models were the Jesionek Quartz lamp fo irradiation of several patients at once (suspensio types with big double burners, as used by Gauvai and the Finsen Institute, were shown) and the Cemac Photostat, a new form of mounting with beautifu control, for pharyngeal work.—[41] The Dowsin Radiant Heat Co., Ltd. (91/93, Baker-street, W. 1 demonstrated all kinds of electrical appliances drawing special attention to the "Ultradescent," an appliance containing four radiant heat and on "Ultra-vi" lamp, for combining the applications Ceiling and floor models of the latter were show and recommended for home use under medica prescription.—[35] The Medical Supply Associatio (167–185, Gray's Inn-road, W.C. 1), in addition to universal operating table, pneumothorax apparatus Hawley's new extension apparatus, and a variety o anæsthetic apparatus, were showing a good deal o X ray material, including the "N.P.L." installatio for small hospitals and general practitioners; th "Metalix" tube, wherein the rays are generate within a metal cylinder so that it embodies its ow protection; and the "Trinity" ultra-violet ligh apparatus, designed to provide radiations of the carbo arc, tungsten arc, and mercury-vapour burner.—[46 G. E. L. Rowarth (130, George-street, Edinburgh had as their principal exhibit a 30 milliampere trans former unit and a 20-inch induction coil unit, bot manufactured by X Rays Ltd. (London), for whic this firm are the sole Scottish agents. The former i

signed to utilise the 30 m.a. self-rectifying Coolidge be at an equivalent spark-gap of five inches for ltine radiography. The latter is a powerful set ich can be used with either gas or hot cathode oes.—[43] Victor X Ray Corporation, Ltd. (Morley use, 314–322, Regent-street, W. 1), showed X ray d ultra-violet apparatus and accessories, notably new design of portable electro-cardiograph and all oes of Coolidge X ray tubes, including the new 0 m.a. radiographic type and the 50 m.a. water-oled deep therapy tube.—[107] Radiation, Ltd., owed modern hygienic gas grates made by Arden ll and Co., The Davis Gas Stove Co. Ltd., Fletcher ussell and Co. Ltd., The Richmond Gas Stove and ter Co. Ltd., Wilson and Mathiesons, Ltd., and hn Wright and Co. All these incorporated the Radiation" patent "Injector-ventilator." The New World" gas cooker has also the "Regulo" tomatic heat controller, which enables food to be oked without attention. The stand was illustrated diagrams showing the results of research which is ing conducted on the emission of energy at various ve-lengths from gas fires. A demonstration burner s on view. At another stand were shown the tcher Russell range of dental appliances.—3] The Radiocoil Electro Magnetic Blanket and Pad, d. (4, Manchester-street, W. 1), is a means of heating whole body by electro-magnetism. The wires lined by quilted satinie and covered with camel-ir fleece. A complete demonstration outfit was ently supplied to University College Hospital.—3] The Thermal Syndicate, Ltd. (Vitreosil Works, allsend-on-Tyne; 3 and 4, Old Pye-street, S.W. 1), owed a selection of transparent vitreosil; chemical d laboratory apparatus; mercury-vapour lamps, &c.

Miscellaneous.

[4] The Inhaling Drug and Apparatus Co., Ltd.), Grosvenor-place, S.W. 1), showed, as in previous hibitions, the Spiess-Drager drug nebulising and naling apparatus for producing dry vapour in gulated flow and density.—[32], [67] Aids for the af were demonstrated by General Acoustics, Ltd. 7, Wigmore-street, W. 1), and Mr. R. H. Dent 09, Oxford-street, W. 1). The former especially owed their very small "Shellacon" pattern with earpiece the size of a farthing, the entire apparatus ighing a few ounces only. Also on view were the ltiple Church Acousticon, as used at Wembley, d a testing set with a series of microphones and rpieces to guide practitioners in prescribing. Mr. nt had developed amidst his wide range of appliances "button type," the smallest ever made, and a ecially disguised microphone in the form of a wrist tch. The "Ardente" stethoscope was again shown. [57] Short and Mason, Ltd. (Tycos), (Atlantic House, –50, Holborn Viaduct, E.C. 1), showed their usual riety of Tycos sphygmomanometers, thermographs, d barographs, and had a most interesting new ording sphygmomanometer giving on a chart a ord of the systolic and diastolic pressures. It is worked from the pressure system, and is provided th a double cuff to cut out oscillations. With it es a Spirometer to measure the exercise taken tween two pressure readings.—[86] Kodak, Ltd. .C. 2) gave special prominence to a system of ll-bladder visualisation, opening up a new field r X ray work, and to dental negatives illustrating e "Bite-Wing" system for early detection of inter-oximal cavities.—[2] Fassett and Johnson, Ltd. 6, Clerkenwell-road, E.C. 1), showed a range of ticles including dental floss, "Poppy" corn caps; celluloid vaccination shield with airholes, lead and mphor boil-plasters, Angier's emulsion and abury's Gold Cross absorbent cotton. Of particular terest among the varieties of Mead's and zinc tide plasters was the new "Multiwidth" spool, ntaining ¼ in., ½ in., ¾ in., and 1½ in. tapes on one el.—[48] Johnson and Johnson (Great Britain), Ltd., Slough, displayed ligatures and sutures, toilet owder and plasters. Their Zobec sponges are iform in size, weight, and texture, and their K.Y. lubricating-jelly is a greaseless water-soluble product which will not stain clothing or fog mirrors. "Band Aid" is a neat little antiseptic dressing fastened to a piece of plaster, ready to apply to any minor injury. —[20, 29] The well-known Thermogene Wool and Antiphlogistine were on show.—[54] G. F. Merson, Ltd. (St. John's Hill Works, Edinburgh), claim to be the pioneer manufacturers of sterile catgut and carry the process right from the intestines of freshly killed Scottish sheep to the finished ligature. They drew special attention to their "Mersutures"—eyeless needle sutures for intestinal work, and to "iod-aseptic" preparing spirit for cleansing "sterile-interior" dry catgut.

BOOKS.

[28] William Bryce (Edinburgh) displayed important and recent publications in every department of medical science, and supply the works of all houses in this country, America, and the colonies at the publishers' rates.—[10] Messrs. J. and A. Churchill (7, Great Marlborough-street, W. 1) had a wide range of medical works including the new edition of "Psychological Medicine" (Craig and Beaton); L. A. Parry's "Some Famous Medical Trials"; Romanis and Mitchiner's "The Science and Practice of Surgery," in two volumes; Rowlands and Turner's "Operations of Surgery" 2 volumes; Sequeira's "Diseases of the Skin"; and "Handbook of Ophthalmology," by Neame and Williamson Noble. Of the popular "Recent Advances" series the latest are "Hæmatology" and "Ophthalmology." "The Medical Directory," published by this firm, is in its eighty-fourth year.—[105] The Food Education Society (24, Tufton-street, Westminster, S.W. 1) showed publications on dietetics and hygiene, including "The Diet of Brain Workers" (enlarged) and the old favourites "Facts for Patriots" and "The Pudding Lady's Recipe Book." Graters (for suet, cheese, and winter salads of root vegetables) and "Bickiepegs" for teething babies were also on view.—[106] H. K. Lewis and Co., Ltd. (136, 140, Gower-street, W. 1), included in their extensive display of books and medical stationery "A Manual of General Medical Practice," by W. Stanley Sykes; "Ultra-Violet Rays in General Practice," by W. A. Troup; "X Ray Apparatus," by P. K. Bowes; "Pyelography," by Alex. E. Roche; "Clinical Neurology," by E. A. Strecker and M. K. Meyers; and J. G. de Lint's "Atlas of the History of Medicine, Part I., Anatomy."—[25] The House of E. and S. Livingstone (16, 17, Teviot-place, Edinburgh) drew attention to its most recent publications: Lee's "Diagnosis and Treatment of Venereal Disease"; Muir's "Bacteriological Atlas"; Chapman's "The Heart and its Diseases"; and new editions of Russell's "Ultra-Violet Radiation" and McKendrick and Whittaker's "X Ray Atlas."—[77] Oliver and Boyd (Edinburgh and London) and James Thin (Edinburgh) showed medical and scientific publications, notably Guy's "Pulmonary Tuberculosis"; Dowden's "Fractures"; Eason's "Exophthalmic Goitre"; Thomson's "Sick Children"; and the *Edinburgh Medical Journal*.—[71] The Oxford University Press (Amen House, Warwick-square, E.C. 4) have recently published a fourth edition of Tod's "Diseases of the Ear"; a second edition of Price's "Textbook of the Practice of Medicine"; Wright's "Applied Physiology"; Harris's "Neuritis and Neuralgia"; Wyard's "Diseases of the Stomach"; Sinclair's "The Thomas Splint"; Henderson and Gillespie's "Textbook of Psychiatry"; Thomson and Gordon's "Chronic Rheumatic Diseases"; and D. A. Crow's "Ear, Nose and Throat in General Practice"—just out.—[6] Among the books shown by W. B. Saunders Company, Ltd. (9, Henrietta-street, Covent-garden, W.C. 2), were "Abdominal Operations," by Sir Berkeley Moynihan; "Mayo Clinic—Collected Papers, 1926"; "Clinical Syphilology," by John H. Stokes; "Principles and Practice of Chemotherapy," by John A. Kolmer; "The Specialties in General Practice," by F. W. Palfrey and teachers of the Harvard Medical

School; "Health Supervision and Medical Inspection of Schools," by Thomas D. Wood; "Textbook of Clinical Neurology," by Israel S. Wechsler; "Diseases of Infants and Children," by J. P. Crozer Griffith; and "A Textbook of Medicine by 130 Authors," edited by Russell L. Cecil.—[70] John Smith and Son (Glasgow) Ltd. (26–30, Gibson-street, Hillhead, Glasgow), had on view, among other recent publications in all branches, Jacobi's "Atlas of Dermochromes"; THE LANCET volumes of "Modern Technique in Treatment"; and the Modern Medical Monograph Series, including Langdon Brown on "Endocrines" and a new edition of MacLean on "Renal Disease." They had also a number of early medical works.—[23] John Wright and Sons, Ltd. (Bristol), showed "Diseases of the Nose, Throat and Ear," edited by A. Logan Turner; "Synopsis of Physiology," by A. Rendle Short; "Cystoscopy," by J. B. Macalpine; and many other standard works; also "The Medical Annual" and the *British Journal of Surgery*.—[72] An innovation was the stand of H.M. Stationery Office, where were displayed the publications of the Medical Research Council, the Ministry of Health, and the National Physical Laboratory; also the medical history of the war and ordnance maps.

SPAS AND MISCELLANEOUS.

[3] At the Bath stand there were pictures of the spa and its therapeutic installations, and attention was drawn to the Old Royal Baths, to be opened in September, chiefly for intestinal douching and treatment in the pool.—[7] The Buxton exhibit consisted of photographs, guide books, and samples of the waters. The Corporation has taken over the Buxton gardens to run in connexion with the bathing establishment. The three-guinea-inclusive treatment scheme has been a great success.—[5] The Harrogate spa has many varieties of medicinal waters, under the constant supervision of a permanent scientific officer. Efforts are being made to popularise the sulphur water cure.—[75] The Stanboroughs, London Area Hydro, Watford, had a stand with illustrations of this country estate where treatment of all kinds is provided as at a hydropathic establishment.—[95] Droitwich claims that its unique brine baths are being more and more generally recognised. Accommodation has recently been extended and includes private and swimming baths, douche, needle, vapour, and aeration baths.—[55] Ingram and Royle, Ltd. (45, Belvedere-road, S.E. 1), as sole agents, were displaying samples of water from the three Vichy springs; Carlsbad waters and natural sprudel salt; and Hunyadi János, as well as many other natural mineral waters.—[79] The Hammond Varityper Co., Ltd. (75, Queen Victoria-street, E.C. 4), showed their instrument equipped with medical keyboard and demonstrated its ability to write any language in 360 different kinds of type with variable spacing, and to duplicate or cut stencils without extra effort. A portable model is made.—[111] The Royal Typewriter is also made in standard and portable models with a medical keyboard. Its colour can be selected to match the decoration of the consulting-room. The small pattern weighs 9½ lb. without case.—[66] The Museum Galleries (53, Short's-gardens, Drury-lane, W.C. 2) as usual broke the monotony of the strictly useful with a display of reproductions of old masters and portraits of medical men, including Lister, Simpson, and Harvey. They showed also a mezzotint of Dr. Harvey explaining the circulation to Charles I., directly engraved from the original in the Royal College of Physicians.—[108] Refreshingly unusual was the display by Sedley Rothwell (71, Oxford-street, W. 1) of hand-painted glassware and Italian Gesso work. The designs were exclusive and the paint would not chip or be damaged by hot water.—[113, 37] The Medical Sickness, Annuity and Life Assurance Society, Ltd. (300, High Holborn, W.C. 1), and The Medical Insurance Agency (B.M.A. House, Tavistock-square, W. 1) had their usual stands.

Reviews and Notices of Books.

INFECTIOUS DISEASES.

Ker's Manual of Fevers. Third edition. Revised by CLAUDE RUNDLE, O.B.E., M.D. Lond., M.R.C.S. Eng., L.R.C.P. Lond., D.P.H., Medical Superintendent, City Hospitals and Sanatorium, Fazakerley, Liverpool, and Lecturer on Infectious Diseases to the University of Liverpool. London: Humphrey Milford, Oxford University Press. 1927. Pp. 346. 12*s.* 6*d.*

THIS well-known manual of fevers, by Dr. Ker, of Edinburgh, was first published in 1911 and reissued in 1922. The present edition has been revised by Dr. Claude Rundle, of Fazakerley, who states in the preface that he has endeavoured to incorporate the results of recent research, keeping in mind the double purpose of the late Dr. Claude B. Ker—that is, to instruct students and to help practitioners. Dr. Ker was known to a generation of students as one of the greatest teachers of infectious diseases in this country and his gifts of clear exposition were well shown in this manual and in his larger work. Dr. Rundle has revised many chapters so as to include the recent work on scarlet fever, diphtheria, and measles. We note that a slight alteration in the antitoxin dosage is recommended, Dr. Rundle advising somewhat larger doses of diphtheria antitoxin than those formerly used. Dr. Ker was one of the pioneers in this country in the matter of the Schick test, and it is to the stimulus supplied by him that the success of immunisation against diphtheria among the school-children of Edinburgh is due. It is fitting, therefore, that this manual should continue to live as a faithful monument of his work.

Diphtheria, Measles, Scarlatina. Second edition. By FRANK V. G. SCOLES, M.D., B.S. Melb., D.P.H. Camb., Medical Superintendent, Melbourne Infectious Diseases Hospital. Melbourne: William Ramsay. 1927. Pp. 321. 21*s.*

THE first edition of this book appeared in 1919 and consisted of a number of lectures, slightly amplified and presented in book form. The present edition has been thoroughly revised and brought up to date. The book is mainly a record of personal opinions and contains much useful information. The author is a keen observer and has sound views on the treatment of these infectious diseases. He includes many useful tables, notably the scheme of antitoxin dosage in diphtheria; while the treatment of laryngeal diphtheria by intubation is admirably discussed. Recent researches on diphtheria and scarlet fever are fully described. There are no plates and no temperature charts, which would have been acceptable, but the book is, on the whole, well written and should prove of great value to the senior student and the practitioner.

DISEASES OF THE EAR IN CHILDHOOD.

Die Ohrenkrankheiten im Kindesalter. Second edition. By Dr. GUSTAV ALEXANDER, Professor of Otology in the University of Vienna. Leipzig: F. C. W. Vogel. 1927. Pp. 399. M.39.

THIS work first appeared in 1911. The second edition has been considerably enlarged; several sections have been revised, including those on the deaf child and the aural complications of general diseases, and a certain amount of new matter has been introduced such as the descriptions of latent otitis, mastoidismus and otitis interna vasomotoria. By the term mastoidismus Prof. Alexander means the symptoms of involvement of the mastoid in the first few days of an acute suppurative otitis, which symptoms retrogress and disappear by the end of the first week. In his view the pus which would be found in the mastoid cells at this stage has flowed into them from the antrum owing to the position of the head, without the cells

iemselves participating in the inflammation. It is, owever, equally reasonable to assume that the astoid cells are inflamed, together with the rest of ie auditory tract, in the early stage of an acute itis, but that they often tend to recover under the fluence of good natural drainage; it is unlikely iat the mastoid would be painful and tender if it ere merely the repository of pus from elsewhere. f the peculiarities of the ear of infants Prof. Alexander ghtly lays stress on the thick and resistant ear-drum young children, whereby an acute otitis may persist r one or two weeks without perforation. This factor, gether with the short and wide Eustachian tube, akes latent otitis far commoner in children than in dults. The infantile characters of the membrane, ie wide Eustachian tube, shallow tympanum, and nited pneumatisation are the anatomical basis of ie susceptibility to inflammation of the middle ear childhood. Of the effect of this last factor he gives ie following example. Suppose, as a result of disturbnce of function of the Eustachian tube, that 1 c.cm. air is absorbed, if with full development of the cells ie entire content be 6 c.cm., the pressure is only duced by some 17 per cent.; but if with deficient neumatisation the total capacity be only 2 c.cm., e pressure is reduced by 50 per cent. and a serious gree of negative pressure results. This argument surely unsound, for, with numerous air-cells, there ust be a large surface for absorption. For parantesis he advises local anæsthesia by means of stillation of a 20 per cent. watery solution of ovocain or alypin; in our experience this produces tle or no anæsthesia in an inflamed drum, and in this untry a general anæsthetic is almost universally referred. The same tendency is shown in the commendation of local anæsthesia for the removal adenoids; the removal of the faucial tonsils is not scribed, though very often necessary in the treatent of aural disease.

Much of the ground covered by this book is necesrily the same as that of any work on otology, for r diseases of children only differ in certain respects om those of adults; the chapters on congenital philis, tuberculosis, and on the aural complications the specific fevers are of special interest, and are ell and clearly written. The illustrations are good, pecially the plates of anatomical drawings, and the ork as a whole is well arranged and likely to be eful to all interested in children's ear diseases—that to all otologists.

ALARIA.

Its Investigation and Control, with Special Reference to Indian Conditions. By ROBERT KNOWLES, Major, I.M.S., Professor of Protozoology, Calcutta School of Tropical Medicine; and RONALD SENIOR-WHITE, Malaria Research Officer. Calcutta: Thacker Spink and Co. 1927. Pp. 220. Rs.78.

THE activities of the Calcutta School of Tropical edicine are not merely confined to research, but find itlet from time to time in the issue of useful volumes. he dedication "With respectful homage to the wives research workers in recognition of their sufferings the cause of Science" is not to be taken as an index iat the subject matter is handled flippantly. On ie contrary, the book is packed full of information of ie kind most valuable to the medical officer entrusted ith civic or rural sanitation in India. It is informave, too, on subjects which are not adequately mmarised in a convenient space in any other andard work. The book is divided into six chapters, which the first three deal with parasitology and icroscopic diagnosis; much of this information, as freely acknowledged, is based upon Wenyon's ork. In subsequent chapters the treatment of alaria, the carrying out of a malaria survey, and ie design, maintenance, and construction of antialaria measures are dealt with in a practical way. ppendices, among the most useful features of the ook, include notes on breeding-places and distribuon of Indian anophelines, illustrated with outline xt-figures of venation, markings, and larval characteristics. A note on technical specification for underground drainage and a useful bibliography complete the work.

The sections on the blood changes in malaria, methods of artificial culture of plasmodia, the measurements of the splenic index, and Sinton's alkaline quinine treatment are specially to be commended. The volume is well illustrated; the five plates of malaria parasites and blood cells are a trifle over-coloured, but this is a minor blemish.

THE NORMAL THYMUS.

Die Menschenthymus in Gesundheit und Krankheit. Vol. I. *Das normale Organ.* Second edition. By J. A. HAMMAR. Leipzig: Akademische Verlagsgesellschaft, M.B.H. 1926. Pp. 570. M.81.

THIS volume contains a detailed account of the author's own work. The greater part of the book is taken up with a detailed description, together with drawings to scale, of the numerous types of thymus gland, human and animal, fœtal and adult, that he has examined. The most interesting chapter of the book deals with status lumphaticus. The author maintains that the diagnosis of this condition depends not on the gross size or weight of the organ, but on the relative proportion of cortex and medulla. He complains that in the recorded cases of thymus death notice is only taken of the gross weight of the organ, and no account is given of the microscopical appearance. The literature is extensively reviewed. This book will be of interest to those attempting to study the curious phenomena said to be associated with the enlarged thymus.

THE LIFE OF THE SPIDER.

By J. HENRI FABRE. Translated by A. T. DE MATTOS. With a preface by MAURICE MAETERLINCK. London: Hodder and Stoughton. Pp. 288. 2*s.* 6*d.*

No one reads Fabre with indifference. To some people he is the most wonderful naturalist there ever was, and they read what M. Maeterlinck calls "the most extraordinary of tragic fairy tales" with a glowing enthusiasm. Others find him wearisome, and are irritated by his open contempt for any method of searching for the truths of biology other than his own. In any case, there is here provided an admirably cheap and well-printed edition of one of his best known collections which is convenient for the pocket and so for reading in the proper place—that is, out of doors.

TELEPATHY.

The Sixth Sense. By JOSEPH SINEL. With a Foreword by MACLEOD YEARSLEY, F.R.C.S. London: T. Werner Laurie. 1927. With three plates. Pp. 180. 6*s.*

THE author has for many years been interested in what are generally called "supernormal" phenomena, and he has been roused to put some of his experiences and convictions on paper by what he thinks is the quite unjustified scepticism which prevails pretty widely about the honesty of the facts. His most interesting data are a long series of experiments, spread over a number of years, in which he drew rough diagrams and pictures in secret which the other party, with no possibility of seeing the originals, reproduced with singular fidelity. The greater part of this might be simple telepathy, which he treats very shortly as a common fact of experience. But in some instances the form rather than the meaning was reproduced—e.g., a sketch of a nursemaid being led by a puppy on a string reappeared as a nursemaid wheeling a go-cart. From this sort of occurrence he concludes that not only the human brain but all matter gives off rays which can be perceived, without the intervention of any of the ordinary senses, by anyone who has the faculty of adjusting their mind to receive them. His arguments

for the existence of this clairvoyance are not altogether convincing; it is difficult, perhaps impossible, to be sure that telepathy is completely excluded. And his identification of the pineal body as part of the apparatus concerned is no more than an act of piety in memory of Descartes. We have more sympathy with his thesis that there is no need to invoke the existence of a spirit world to explain the phenomena: the other world to Mr. Sinel is here and now. He notes too briefly that telepathy and clairvoyance play a much larger part in animal than in human life: a more ample treatment of this side of the question would have been welcome from one whose accomplishments as a practical biologist were shown in the admirable "Natural History of our Shores" published about 20 years ago.

ORGANIC CHEMICAL ANALYSIS.

A Student's Manual. Reissue with Appendix on New Methods of Organic Analysis. By JOCELYN FIELD THORPE, C.B.E., F.R.S., Professor of Organic Chemistry, Imperial College of Science; and MARTHA ANNIE WHITELEY, O.B.E., D.Sc., Assistant Professor. London: Longmans, Green and Co., Ltd. 1926. Pp. 250. 9*s*.

THIS manual is a reissue of the book previously reviewed in our columns, with the addition of an appendix on New Methods of Organic Analysis by H. Ter Meulen and J. Heslinga. The incorporation, without any comment, of the work of these two Dutch chemists is a little surprising; the methods described have only been evolved during the last three or four years, and it is to be regretted that the authors do not bring forward any evidence of having tried these new methods themselves before recommending them to others.

THE SEX GLANDS.

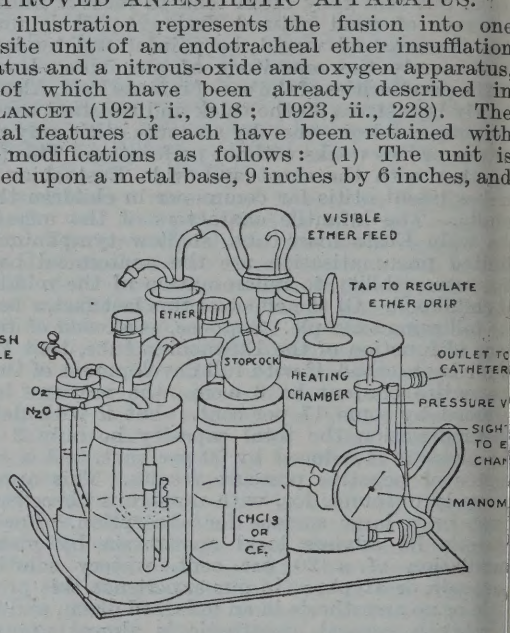
Die Wirkungsweise abgestufter Keimdrüsenschädigung. By Dr. H. V. KLEIN. Berlin: Urban and Schwarzenberg. 1927. Pp. 128. M.12.

THIS monograph contains a detailed review of the literature on the function of the sex glands and a very complete bibliography. The author also describes a number of experiments of his own on rabbits and guinea-pigs. The experiments can be divided into two main groups: (1) quantitative operations, such as castration and partial castration; and (2) qualitative operations, such as autoplastic transplantation, ligature, section or resection of the vasa, radium or X ray radiation, effects of heat and cold, effects of drugs and poisons, and temporary sterilisation with the cautery. Many of Dr. Klein's results are well in accord with those of other observers, but in certain points he differs from them. He finds that increase in weight and tissue-fat is not an invariable accompaniment of castration in the male, and even less so in the female. His quantitative partial castration experiments were inconclusive. In his autoplastic transplantation experiments in adolescent guinea-pigs an interesting finding was a remarkably rapid development of somatic and psychical sex phenomena. The animals were, of course, sterile, but, even after 12 months, evidence of development and maturation of sperm cells was obtained; but an increase in interstitial cells was not a constant finding. The endocrine effect in autoplastic transplantation rarely lasts more than a year in the male, but in the female the endocrine function appeared to last longer after transplantation than in the male. Much the same effect in the male was obtained by ligature of the vasa. In his X ray radiation experiments the author was unable to reach a dose which could in any sense cause a true "Rontgen castration." He found that radiating the ovaries of an immature rabbit led to destruction of part of the follicular apparatus; but the remainder became more active than before, and brought on premature sexual maturity. The interstitial cells were found to be more resistant to X rays than the glandular elements.

New Inventions.

IMPROVED ANÆSTHETIC APPARATUS.

THE illustration represents the fusion into one composite unit of an endotracheal ether insufflation apparatus and a nitrous-oxide and oxygen apparatus, both of which have been already described in THE LANCET (1921, i., 918; 1923, ii., 228). The essential features of each have been retained with slight modifications as follows: (1) The unit is mounted upon a metal base, 9 inches by 6 inches, and



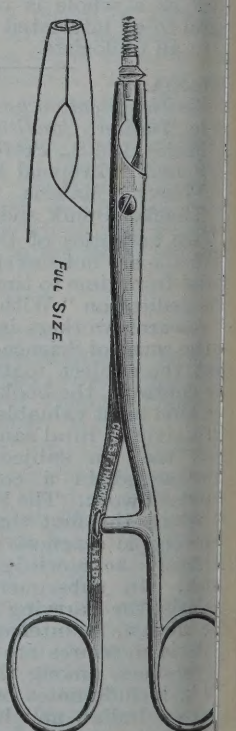
can be carried in a bag without being dismantled. (2) The mechanical safety-valve and manometer are now fitted directly on the heating chamber. (3) The ether drop-feed has been altered to the shape of a dome which can be easily seen from any angle. (4) A water sight-feed has been included for the administration of carbon dioxide.

The makers are Messrs. Down Bros., Ltd., St. Thomas's-street, S.E. 1.

I. W. MAGILL, M.B., B.Ch., B.A.O. Belf.

A SCREWDRIVER FOR OX BONE PLATES.

Cunningham's ox bone plates fixed with bone screws are now largely supplanting metal plates in the operative treatment of fractures. The insertion of a bone screw differs in several respects from that of a metal screw, the former requiring more finesse of technique. After the bone has been bored with a drill, the resulting cavity is "tapped." It is then ready for the reception of the bone screw. For the purpose of inserting the bone screw I have found the forceps-screwdriver of the greatest possible assistance. The readiness with which this instrument can be disengaged prevents the disappointment caused by the thread of the screw becoming broken in endeavouring to release the ordinary screw holder.



The instrument is made by Messrs. Thackray, of Leeds.

HAMILTON BAILEY,
F.R.C.S. Eng.

THE LANCET.

LONDON: SATURDAY, AUGUST 20, 1927.

THE METROPOLITAN ASYLUMS BOARD.

THE Metropolitan Asylums Board, which has just ssued an annual report [1] for the twenty-ninth year succession, may be regarded from the medical andpoint as a coördinated group of special hospitals; very large group, it is true, for the capital outlay own in the financial statement up to the end of arch, 1926, is given as over £7,500,000. The hospitals, should be well known by this time, include not ly 15 institutions for infectious diseases, but ten hers for tuberculosis, six for non-dangerous forms mental failure, five for sick and convalescent ildren, and one for venereal diseases. The funds for nning these very large and efficient hospitals which rve an area covering 121 square miles, with a popula- n of over 4,500,000, are raised principally from a vy on the rateable value of the area, which is pooled as not to press unduly on the poorer parishes and ions; to take an example, the rate is levied on value of £8,000,000 in the City of London, which s only an estimated population of 13,000 to make e of the hospitals, while in Wandsworth, which has rateable value of under £4,000,000, there are over 0,000 persons who stand to benefit thereby. Some dication of the return obtained for the money may gained from the statement that the treatment of ver uses up a rate of nearly 4*d.* in the £, tubercu- is and children each another penny, and the care imbeciles and feeble-minded persons just over 3*d.* ie Board's record of central efficiency and economy, ng with liberty for advance and healthy rivalry nong its several units, is worth the attention of ose who are sweeping away the Poor-law and all works. Etymologically it is interesting to see the rvival of the term "asylums" as a description of stitutions none of which deals with acute or ngerous mental disease, and it may not be too uch to hope that the beneficent and universally pular work of the Board may succeed in redeeming e term from the stigma of its association with rdship and restraint.

The development of the medical work has gone on interruptedly since the Board was established under e Metropolitan Poor Act of 1867, when the classes gible for admission were limited to harmless Poor- v imbeciles and Poor-law cases of scarlet, enteric, d typhus fevers and small-pox. Sixteen years later e civil disabilities attached to admission to the ard's hospitals were removed and year by year w categories of physical and mental diseases were ded to the eligible list. The year under review is table for the highest number of whooping-cough ses ever under the care of the Board at one time ice their admission began in 1910. On March 15th t 789 beds were occupied by cases of whooping- ugh of a character severe enough to make hospitalisa- n desirable, the justification for this allocation being shown by the level of the case-mortality in hospital of this so-called trivial childish affection, which has rarely sunk below 10 per cent.; whereas the percentage case-mortality from scarlet fever has steadily fallen from 12·6 in the 'eighties to less than 2 during the last ten years, and has actually been only 0·8 in the year under review. Approval has now finally been given to the limitation of beds for scarlet fever cases, to make room for severe cases of measles and other infectious diseases of childhood when accommodation is insufficient for all. Acting on the consensus of the metropolitan medical officers of health, the Board will continue to admit cases of scarlet fever and measles on practitioners' certificates as now, without reference to the medical officer of health, until such time as any shortage of beds is imminent. Should this occur, applications from practitioners are to be referred to the health office, when the selection of cases for admission will be based on type of home rather than on type of disease, priority being given to cases of measles in tenement houses where there are no facilities for home nursing, or in houses connected with shops, or where a member of the family is employed in the handling of food. These arrangements will require some extension in the facilities for isolation at the infectious hospitals, and on the advice of Dr. F. F. CAIGER, the retiring chief medical officer of the Infectious Hospital Service, the isolation accommodation in the acute hospitals is to comprise one-third of the total beds. Dr. F. H. THOMSON, the new chief, issues a word of warning against regarding the present benignity of scarlatina as permanent. The behaviour of this disease during recent years is not unlike what has happened in the past. It behoves us, he writes, to be on our guard and to perfect its treatment by antitoxin in every way we can, lest we be caught napping.

Change is also going on in the accommodation at the mental hospitals. An undertaking given by the Board to the London County Council to reserve 30 beds per month for suitable mental defectives has resulted in the exclusion of cases from outside the metropolis, although as a matter of fact the demand on the part of the County Council has been less than was arranged for. In general the admission of children to these hospitals continues to fall off, for the County Council now has its own special schools, and only after leaving these does institutional care become essential. Applicants for admission are therefore now generally young adults, and again it may be emphasised that these hospitals are designed for patients of harmless type, not for those who have come under the notice of the police. At the Darenth Colony the attempt to make these young people content with their new existence is successful with all except the most restless of the high-grade defectives. The facilities for schooling, for various kinds of manual occupation, and for the utilisation of free time by guide and scout activities, as well as more conventional forms of entertainment, fill up the day so pleasantly that parents, it is hoped, will come to regard the period of treatment no longer as a period of punishment. The mental hospitals, however, have to face a difficulty in the shortage of nursing, for although there is no general shortage of new probationers in the fever hospitals and no lack of male mental nurses, the supply of suitable female candidates for nursing is inadequate at three out of the five mental hospitals. The report suggests that the remedy lies in the acquisition of a reputation for giving an efficient training and for attention to the personal comfort which compensates the nurse for the restrictions inseparable from hospital life.

[1] To be obtained from the Clerk to the Board, Victoria Embankment, London, E.C.4. 5*s*.

SUMMER DIARRHŒA.

THE problem of summer diarrhœa at one time perforce exercised the minds of all urban practitioners and medical officers of health, for the disease was often a calamity. Year by year, whenever the summer was hot and especially when it was hot and dry, there was a heavy toll of deaths, levied almost entirely on young children. The last great epidemic, however, was in 1911—a year in which the summer was hot and dry almost without precedent—and since then the incidence has rapidly diminished, becoming, indeed, comparatively negligible. In the first week of the present month only seven deaths were registered in London as due to diarrhœa and enteritis under 2 years. Considerable speculation centres round the reasons for this decline.

The belief that summer diarrhœa is an infective disease spread under certain climatic conditions led at one time to diligent search for the bacterial cause. The results were rather surprising, for in America *Bacterium dysenteriæ* was isolated in many cases, in France *Bacillus proteus* was advanced as the cause (though the evidence was very incomplete), in Germany other bacilli were found, whilst the careful work of MORGAN suggested that Morgan's bacillus was responsible in at least a considerable number of cases in English outbreaks. These conflicting results have thrown doubt upon the conception of summer diarrhœa as a disease with a single bacteriological cause in any way comparable with dysentery or enteric fever; indeed, there is some divergence of opinion whether it is a definite clinical entity. Of recent years considerable evidence has been put forward in favour of the view that the condition is of nutritional origin. According to this theory the prevailing ætiological factor is bad feeding, as a result of which diarrhœa and dyspepsia develop under the circumstances produced by a considerable rise in temperature. The immediate cause may be infection with bacteria already present in the intestinal tract or may possibly be chemical and fermentative disturbance. Many exponents of the widely held infective theory consider that flies play a conspicuous part, and the striking decline has been ascribed to the replacement of horse by motor traffic and the resultant diminution of centres of infection. Others ascribe much of the decline to improvements in the milk-supply and to the care of milk in the home.

The impartial student must admit that none of the theories fits all the facts, and we welcome a recent paper[1] by Dr. G. S. WILSON which attacks the problem from a different point of view. He describes two epidemics among mice that were closely associated with Morgan's No. 1. bacillus. In both of these epidemics the mice, which were fed on oats and raw beef, were found at autopsy to be suffering from peculiar lesions—an advanced degree of anæmia, pale and swollen kidneys, and general pallor and dryness of the tissues—not hitherto encountered in any other mouse epidemic. In other series of experiments the mortality from infection by Morgan's bacillus was much higher (12·9 to 1·9 per cent.) among meat-fed mice than among the controls. Dr. WILSON throws no light upon the factors which enable Morgan's bacillus to spread in epidemics among mice, and his attempts to infect mice by feeding them on cultures of this organism were ineffective. It appears that the bacillus can give rise to infection only in the presence of some predisposing factor, and it is possible that this factor may be dietetic. Summer diarrhœa in infants may be due to non-lactose-fermenting bacilli which are enabled to multiply and transfer themselves from case to case under certain conditions of which high temperature seems to be one of the most important.

[1] Jour. of Hyg., 1927, xxvi., 170.

MENTAL DISEASE IN THE LABORATORY.

THE awakening of interest in the physical pathology of mental disease marked a great step forward. Formerly, insanity was regarded as a psychological or spiritual anomaly, and the attempt to approach its mysteries through the study of the body was a sign of emancipation from fatalism. The spread of this movement has been rapid, and it has steadily coöpted neurologists, endocrinologists, and biochemists into its ranks. There has, in fact, even been a danger of a general drift away from the study of morbid pathology, as Dr. EDWIN GOODALL remarked in his Maudsley Lecture on May 19th.[1] He expressed the hope, however, that the active interest shown by so many workers in normal brain histology would save the morbid side from serious neglect, and was indeed, able to give several convincing examples of progress made in recent years. His survey of the fields of endocrinology, serology, and bacteriology shows how actively these are cultivated, but the most remarkable strides of recent years have undoubtedly been made in biochemistry. Prior to 1904, he said, he could recollect no outstanding communication from a chemist in the realm of psychiatry, but in that year appeared "Some Metabolism Studies, with special reference to Mental Disorders"[2] by FOLIN and SCHAFFER. This work led to the conclusion that general paralysis of the insane might be associated with metabolic disorder and that different abnormalities of metabolism occurred frequently in all types of mental patients, but pointed to the need for more accurate analytical methods before any definite coincidences could be proved. This was the borderland between pure chemistry and the much more complex and elusive biochemistry. Only those, says the lecturer, who have been in touch with biochemical investigation can appreciate the amount of spade-work that was necessary to evolve accurate methods, without which research could not begin. If biochemistry is to be really effective, its exponents must work in close association with the physiologists and biologists and with the clinicians and pathologists.

Here a good example is epilepsy. In our last issue (p. 325) the biochemical investigations of epilepsy were well summarised by Dr. S. H. G. ROBINSON, Dr. RUSSELL BRAIN, and Mr. H. D. KAY, who drew attention to the association of low blood cholesterol with the occurrence of fits. Dr. GOODALL points out that the assumption that hypoglycæmia precedes a fit has not been confirmed. Large doses of glucose did not affect the incidence of the fits in a series of epileptics. Nor is alkalosis a forerunner of the paroxysm, for dogs with epileptogenic lesions of the Rolandic area do not suffer from fits when the alkalinity of their blood is artificially raised to pH 7·50. The blood-sugar content of the blood of the epileptic does not tend to alter consistently either before, during, or after the fit; but the cerebro-spinal

[1] The Eighth Maudsley Lecture: Dealing with some of the work done to elucidate the pathology of disease falling to be considered under the rubric "Insanity," Journal of Mental Science, July, 1927. The Maudsley Lecturer for 1928 is Dr. John Macpherson.

[2] American Journal of Insanity, lx., lxi., 1903–1905.

gar is generally higher than that of the normal bject, and is raised slightly during a fit. General ralytics, on the other hand, usually have a lower rebro-spinal sugar content than normal; this ay be due to faulty functioning of the choroid exus or gland. Much work has been done on the nction of the choroid plexus with its cellular ing, which seems to be part of the "barrier" otecting the nervous system from the blood stream. the latter part of 1924, WALTER discovered a ethod of testing the degree of permeability of this rrier, by giving sodium bromide for three days and mparing the amount of bromide in the serum with at in the spinal fluid by a colour test. The result of is comparison is expressed in the form of a rmeability quotient (P.Q.), which in the normal rson varies between 2·90 and 3·30. WALTER and AUPTMANN have suggested that the P.Q. is high in hizophrenes and low in those suffering from functnal or symptomatic psychoses. BÜCHLER found the minished permeability of the screen more marked in unger schizophrenes. Dr. GOODALL, however, ds that this test will not serve as a means of diagnosis tween the two conditions. KANT observes a nnexion between increased permeability (a low Q.) and lability of the plasma colloid, and between high P.Q. and a stability of the plasma. The rmeability in general paralysis is high. A valuable scovery was that of the low sugar tolerance of ost early and chronic mental patients, especially ose suffering from melancholia and stupor. The sting level is normal, but the glucose meal leads to sustained hyperglycæmia. Dr. GOODALL considers at this may very likely be due to lability of the getative nervous system. In the normal person, mulation of this system leads to glycogenolysis rough a greater activity of the gastric mucosa; in gotonic patients it leads to a storage of liver gcogen. The lecturer also described the vast mount of careful work done on the calcium and osphorus contents of the body in various abnormal ntal conditions, and the proportion of the various rogenous constituents of the plasma and cerebronal fluid. The studies in the Acid Base Equilibrium Psychoses carried out by Dr. ISABELLA ROBERTSON (THE LANCET, August 13th, p. 322) while working at e Maudsley Hospital are typical of the kind of work hich should lead us to a better understanding of the ation of physical to mental abnormalities.

Psychiatry has passed through a superstitious phase d a materialistic phase. It is now in the fresh our of adolescence, and is undergoing sharp nflict between the claims of the speculative ychologists and those who seek to approach it m the physical side, of which the exponents are the chemical team. Happily, the balance is held by a ge number of far-sighted and able workers who ssess the application of the biochemists together th the vision of the analysts. The day may not be f off when the conflict will be resolved, and both es will work together to solve the deepest mystery medical science—that of human personality. Such bates as were held during the joint session of the urological and Psychiatric Sections of the British dical Association and the Royal Medico-Psychological Association form a good example of deliberate ack upon the problem.

NETHERLANDS INDUSTRIAL EXHIBITION. — This hibition, to be held at Rotterdam from June 1st to t. 15th, 1928, will contain a section on industrial welfare l psychology and occupational diseases. Exhibitors his section should apply to Dr. J. Sanders, Heemradssingel), Rotterdam.

Annotations.

"Ne quid nimis."

THE SEASONAL DISTRIBUTION OF MORTALITY.

WE have already called attention to some of the many points of interest in the Registrar-General's statistical review of England and Wales for 1925.[1] In our last issue appeared a note on the geographical study of mortality from respiratory disease. In past years the Registrar-General has published in his annual report some data concerning the seasonal incidence of the chief zymotic diseases based upon the death returns of London since 1841. In his most recent report appears a more ambitious and very important statement of the seasonal incidence of mortality from a large number of diseases, in regard to which improved accuracy has been secured by tabulating according to the date of death instead of the date of registration and by fusing the experience of the whole of England and Wales for the years 1921–25. The first curve given in the report deals with total mortality, and shows a maximum in February and a minimum in August. Its most remarkable feature is the disappearance of the former August rise, which was due to diarrhœal mortality. The standardised death-rate from diarrhœa fell by 27 per cent. between 1901–10 and 1911–20, and by 45 per cent. between 1911–20 and 1925. This important change to a single swing of mortality brings England into line with the general experience characteristic of Northern Europe; when the subsidiary summer elevation occurred England's experience resembled that of the middle and southern sections of Europe. The death curve follows fairly closely that of air temperature, and respiratory diseases are the dominant influence in bringing about the general effect. Some of the changes which are shown to have occurred in the seasonal incidence of infectious diseases have great epidemiological interest. The maximum of incidence of typhoid fever has shifted from November to October. Measles has ceased to have a double peak of mortality, and a special diagram shows the stages of the transition, as the result of which the December peak has disappeared and the June peak is replaced by one in April. Local variations in seasonal incidence of measles mortality were noted by the Registrar-General in 1884, and Prinzing records a remarkable change in the seasonal behaviour of measles in Hamburg during the nineteenth century comparable with that noted for London in the twentieth. Scarlet fever again has shifted its minimum from March and April to August and September, and its maximum from October and November to January. An interesting subject for speculation and still more for investigation is opened out by this change from the autumnal elevation, characterising typhoid fever and poliomyelitis, which has taken place in scarlet fever, and it may be added in diphtheria. A similar remark applies to measles. General interest attaches to the suggestions that the seasonal incidence in the mortality of gastric and duodenal ulcer and of heart disease—characterised by a marked excess at Christmas—may not impossibly be due to the excitement and over-indulgence in food which often occur at this season.

STUDIES IN SCARLATINA.

THE impulse which the recent work of the Dicks has given to research in scarlatina is reflected in the medical journals, and some exceptionally interesting developments are to be found in the current number of *Acta Pædiatrica* (Vol. VI., Fasc. 3–4) which contains three separate papers on scarlatina. In one of them, Dr. Malmberg and Dr. Jacobsohn, of the

[1] The first instalment of the Statistical Review for 1926 has now appeared (H.M. Stationery Office, 15s.). This contains Tables, Part I., Medical, without commentary.

Karolinska Institute of Stockholm, give an account of investigations with the Dick test in 1200 children attending hospital up to the age of 15. In infants of only six months the reaction was positive only in 16·4 per cent. This percentage had risen to 48·8 in infants between 6 and 12 months old, and the greatest proportion of positive reactions was observed between the first and fifth years. Thus between the years of 3 and 4 the percentage of positive reactions was 80·9. After the age of 6 there was a decline in the frequency of the positive reactions, the decline being at first slow and later more rapid. The supposition, credited to the Dicks, that persons who have had scarlatina give a negative cuti-reaction was not confirmed, at any rate as a generality. For among 802 children giving a positive reaction there were eight with a record of scarlatina. Among the 290 who gave a negative reaction there were 60, or 20·7 per cent., who had had scarlatina. Whether this negative reaction indicated a natural immunity or one acquired by an unnoticed abortive form of scarlatina is not clear. The consistency with which the reactions remained positive or negative when repeated once or oftener was investigated in many cases, and of 203 children giving a positive reaction on the first occasion as many as 190 did so on repetition of the test; only in two of these cases was the reaction definitely negative when repeated. Of the 82 giving a negative reaction on the first occasion, 54 continued to do so, and only in 17 cases did the reaction become positive. (It should be noted that in each series of tests there were some cases of doubtful reactions.) It would seem, then, that a positive reaction is a more constant and reliable phenomenon than a negative reaction. The paper by Dr. Gorter, Dr. Korte, and Dr. Munk includes an account of an epidemic of scarlatina in an asylum for mentally defective children. Of 74 boys, 22 suffered from scarlatina. Of the remaining 52, only 12 gave a positive reaction. Next day one of these 12 developed scarlatina. Of the remaining 11, six were given no specific treatment, yet some time later five of them were found to give a negative reaction, although in the meanwhile they had shown no clinical evidence of scarlatina. This observation would seem to indicate that immunity to scarlatina may be acquired by contact with it no symptoms are apparent. In the third paper Dr. Jundell and Dr. Lönberg, of the Karolinska Institute, give an encouraging account of 17 cases of scarlatina treated with antitoxic scarlatinal serum, obtained from a horse immunised to a toxin-forming strain of streptococcus from a case of scarlatina. This paper also contains a useful summary of the work already done in connexion with passive immunisation against scarlatina.

THE TREATMENT OF CATARACT.

"The verdict of the Indian peasant is destined to decide the treatment of cataract as it has decided that of stone in the bladder."

THIS is the dictum of Lieut.-Colonel Henry Smith, I.M.S. (retd.), whose own intracapsular operation is well known, and has created for him such a reputation in the Punjab that the number of operations performed in that province by his method has increased fourfold during the last 30 years. In the other provinces of India, where capsulotomy is practised, the figures have remained comparatively stationary.[1] How is it that in this country no intracapsular operation for cataract has as yet been established in the practice of the great majority of ophthalmic surgeons? The advantages are obvious. No soft matter and no capsule can be left in the eye to cause subsequent irritation and to obstruct vision. If the operation goes well the eye is as good as any eye without a crystalline lens can be. On the other hand, there are certain disadvantages. Whichever of the two principal intracapsular operations—Smith's or Barraquer's—is chosen, there is always the danger that in unaccustomed hands vitreous may be lost. How serious a slight loss of vitreous may be is a matter on which there may fairly be a difference of opinion, but there can be no doubt that a considerable loss is dangerous for the future of the eye. It is acknowledged on all hands that the results of an intracapsular operation in the hands of Smith himself, or Barraquer himself are excellent. The success of both operations depends upon the rupture of the suspensory ligament which normally keeps the lens in its place; this rupture has to be done by the exercise of just the right amount of force, for if too much is used there may be a large loss of vitreous. Smith's technique depends upon the pressure of a squint-hook on the external surface of the cornea, while the lids are kept apart by a skilled assistant to avoid the pressure of a speculum. Barraquer uses a special instrument by which a vacuum is created and the lens is drawn out. Smith, however, maintains, in the article already referred to, that Barraquer does, in fact, exercise pressure with his instrument, and that the actual technique of Barraquer's successful operations is analogous to that of his own, and that the reason why so many who have tried Barraquer's method have failed is simply that they have not understood this fact. This is not the place to describe the details either of Smith's or Barraquer's technique. Colonel Smith looks forward to the day when the capsulotomy operation now in vogue will be relegated to the dust-heap. Nevertheless, there is something to be said for conservatism in this matter. Before the majority of ophthalmic surgeons will adopt either of the new methods it is not enough to demonstrate to them many brilliant successes. They must also be assured that the small percentage of complete failures that even the best of surgeons must expect to meet with during his operative career is not in danger of being made less small. Without that assurance no new operation has a chance of being generally adopted in this country.

[1] Indian Medical Gazette, March, 1927.

TUBERCULOSIS IN THE FRENCH MERCHANT MARINE.

THE Superior Council of the Merchant Marine impressed with the prevalence of tuberculosis among the personnel of the French Merchant Service. Dr. Marcel Clerc, who is a member of the Council and has had large experience of the sea in mail steamers, can give no statistics[1] although he has part of the evidence before him at a tuberculosis dispensary in the Department of the Seine. Dr. Clerc assumes rather airily that things are better in England and Germany than in France, and he quotes certain pre-war figures from large French shipping companies which suggest a death-rate from tubercle among the sailors at that time of 0·9 per 1000. He then sets himself to discover what can best be done. Tubercle has been ascribed to poverty, bad housing, and drink which France cannot delay to put right, but there must be an element of infection too, resulting in the relapse of an old or the occurrence of a new infection and the first practical step must be therefore to exclude infection from all ships and fishing boats. The 1921 Congress of Hygiene at Paris resolved that no sailor with open tuberculosis should be allowed to join any boat or ship, and that the provision of cubic space and ventilation should be more generous. The first measure ought to be more effective in France than in England, for French seamen, being registered in the *Inscription Maritime* that they may be called up in war, are all known to the authorities. But this resolution has remained apparently a pious hope, and Dr. Clerc demands that all seamen shall be examined medically on entering the service and again each time on joining a new ship, and any who are found to be expectorating tubercle bacilli shall be rejected and ordered to the local tuberculosis dispensary for appropriate treatment and the care of their families.

[1] La Tuberculose dans la Marine Marchande. By Dr. Marcel Clerc, Member of the Superior Council of the Merchant Marine. Paris: Vigot Frères. 1926. Pp. 64. 1s.

is done for civilians in general. Fortunately, there in France a fund which pensions seamen, when capacitated by accident or disease, if these are rtified by their captains as caused by duty; and, fact, 37 per cent. of the pensions granted at Dunkirk 1920 were for phthisis. Pensions out of funds for ilors should, however, only be granted to men who ntract disease as sailors—that is to say, men certified und when they joined the service. This is the ocedure of all the large employers of labour in ance; they accept no new employees unless declared edically fit. At present tuberculous seamen are ly excluded from ships trading to the U.S.A., asmuch as an infected seaman involves the ship in avy expense at an American port. Dr. Clerc has idently given much time and thought to this estion of the prevention of tuberculosis at sea, and s careful studies should bear fruit in time. Tubercu- is has been halved in the British Navy in the last years, and, perhaps because of more careful edical examination and better hygiene, apparently the British mercantile marine as well.

MEDICAL OFFICERS UNDER THE POOR-LAW.

FOR some time past a Joint Committee of both ouses of Parliament has been considering a Bill ich has for its object the consolidation of all the or-law statutes relating to the relief of the poor. is Bill received the Royal Assent in the session st closed, under the title of the "Poor-law Act, 27." The Act commences with the famous Poor lief Act passed in the reign of Queen Elizabeth and ds with the Act passed last year. In view of the gth of time covered and the numerous statutes ich have been passed (some of them in conflict th one another, whilst others have become obsolete olly or in part), it may be useful to see what is the sition of medical practitioners under the Poor-law it stands to-day.

In the first place, we may classify Poor-law medical icers into two classes—viz., indoor (which does not cessarily mean resident) and outdoor. Indoor icers are appointed either to a workhouse (or nstitution" as it is more generally termed), an irmary or hospital, children's homes, or casual rds. Outdoor medical officers are appointed for specified district to attend to poor persons living their own homes. In the Metropolis medical icers may be appointed to dispensaries at which sons, who are provided with an order from a lieving officer, may receive attention.

Tenure, or continuance in office, of medical officers regulated by Orders of the Minister of Health or predecessors. Article 1 of the Medical Appoint- nts Order, 1857, prescribes that a workhouse dical officer

"shall hold his office until he shall die or resign or be proved to be insane by evidence which the Poor-law Board shall deem sufficient, or be legally disqualified to hold such office, or be removed by the Board." (The Minister of Health is now substituted for the Poor-law Board.)

In the case of infirmaries or hospitals and children's homes, as also of institutions provided by joint committees for feebleminded persons, and the like, special orders are issued by the Minister. The foregoing observations apply also to outdoor (or district) medical officers; indeed, there is no reason why the two appointments should not be combined. Although guardians have the right of appointing a medical officer, they have no power to dismiss him (though they can suspend him). The Minister will only accede to the guardians' wishes when the amount of compensation has been mutually agreed between them and the officer. Under the Poor-law Officers' Superannuation Act, 1896, guardians are empowered, with the sanction of the Minister, to pay an amount not exceeding twice the preceding year's salary and emoluments. The medical officer has also a statutory right to the return of the amounts deducted from his salary under that Act. If the Minister thinks it expedient for the purpose of improving the classification and management of any classes of poor persons that a resident medical officer should be appointed for any Metropolitan workhouse, he can determine or vary any officer's contract and direct the board of guardians to pay compensation by way of increased salary or otherwise.

Under the Poor-law Act, 1927, the Minister may:—"by order, either upon or without any suggestion or complaint in that behalf from the Board of Guardians remove, or suspend, any paid officer of the Board whom he considers unfit or incompetent to discharge his duties, or who at any time refuses or wilfully neglects to obey and carry into effect any rules, orders, and regulations made by the Minister. . . . Any person so removed or suspended shall not be competent to be appointed to, or to fill any paid office connected with the relief of the poor in any Poor-law union except with the consent of the Minister."

This section of the Act purports to bring the law into line with the existing practice. Under the statutes previously in force an officer who had been removed from one union could legally be appointed in another union, but the practice has always been to construe the statute as meaning that such an officer is ineligible to serve in any union unless the Minister assents thereto. The power of the Minister as regards removal is far-reaching. In the evidence given before the Joint Committee it was stated by a witness that he hesitated to say how often the Minister exercised the power of removal, but that he would not be surprised if there were four or five cases in each year of complaints.

The power of the Minister came before the Courts on two occasions—viz., in *ex parte* Teather (1850) 19 L.J.M.C. 70 when it was held that a relieving officer could be removed by the predecessors of the Minister although no charge had been alleged against him; neither had he been given notice nor given an opportunity of making any defence. So also in *ex parte* Molyneaux 7 L.T. 599 it was decided that a chaplain (who has the same tenure of office as a medical officer) was removable as unfit for his office and that no grounds need be assigned for such removal.

The Act makes no change in the duties of medical officers. These duties are prescribed by the Minister under his general statutory powers and they are contained in the General Orders. The main duties of a workhouse medical officer are contained in Article 59 of the Poor-law Institutions Order, 1913; those of the district medical officer are contained in Articles 198–200, 205–206 of the General Consolidated Order, 1847, as amended by the General Order of 1879, and the Powers of Guardians Order, 1921. Under the latter Order a district medical officer is allowed to live outside his district if no suitable medical practitioner resident in the district is willing to act at a reasonable remuneration. The Act re-enacts the duty of a workhouse medical officer, after examination, to report in writing whenever any inmate is not in a fit state to leave the workhouse without danger to himself or others by reason of suffering from delirium tremens or from bodily disease of an infectious or contagious character. The guardians may give effect to such certificate by requiring the master of the workhouse to detain such inmate until such time as the medical officer certifies in writing that discharge may take place. The parent or next-of-kin may, however, give an undertaking to provide for the removal, charge, and maintenance of such inmate with due care and attention while the malady continues, and in that case the inmate must be discharged. It has been held by the law officers of the Crown that an inmate suffering from venereal disease cannot be compulsorily detained under these provisions, nor apparently can cases of pulmonary tuberculosis be so detained. As regards the introduction of intoxicating liquors into a workhouse, this is prohibited by the Act unless for the domestic use of the officers. If such liquors are otherwise required, the medical officer or the guardians must give a written authority to the master.

The provisions in the Act relating to Metropolitan dispensaries re-enact the existing law. It is, however, provided that the dispensary committee is to appoint the district medical officers. As the dispensary committee may be composed of persons who are not

members of the board, it is the practice for boards of guardians to make such appointments themselves, and no doubt they will continue to do so, despite the statutory rule. For the purpose of establishing dispensaries in London, the Minister has power to vary medical districts and the salaries and contracts of district medical officers. Another provision, which applies only to London, is that boards of guardians, with the consent of the Minister, may enter into arrangements with any public general hospital or dispensary situate within the union, for the reception and treatment of persons in receipt of relief, on terms to be arranged between the guardians, with the Minister's sanction, and the authorities of the hospital or dispensary.

In conclusion, it may be pointed out that the Act does not extend to the Lunacy Acts, the Vaccination Acts, Registration of Births and Deaths Acts, or the Poor-law Officers' Superannuation Act.

C.S.M.M.G.

THE Chartered Society of Massage and Medical Gymnastics would have it known that anyone who is entitled to add to his or her name the initials C.S.M.M.G. has been through a supervised course of training and has passed a professional examination of high standard. After these conditions have been satisfied, no certificate of membership in the Society is granted until an undertaking has been signed by the applicant to observe the three rules which follow :—

(1) Not to undertake any cases of massage except under the direction of a registered medical practitioner.

(2) Not to advertise except in recognised medical and nursing papers.

(3) Not to sell goods to patients in a professional capacity, and not to accept secret commissions on the sale of goods.

The undertaking not to advertise has, we are told, been loyally obeyed, although at times it places the qualified masseur or masseuse at so great a disadvantage when competing with the unqualified as to suggest a doubt as to its fairness. But whenever the question has been raised the council of the Society has held that public advertising would be derogatory to the profession of massage, and the undertaking still remains obligatory on entrants. There are now over 5500 masseurs and masseuses registered with the chartered Society. The majority of these are qualified to administer remedial exercises and medical electricity, and the register shows that the members are well scattered over the United Kingdom and the dominions overseas. An illustration is given in the prospectus now in circulation of the extent to which physical treatment is employed in the larger London hospitals. Among male patients between the ages of 16 to 70 at two of these, 10 per cent. received during the year treatment involving massage, exercises, or electricity, the number of individual treatments per patient averaging 25. The Society, which was incorporated in 1900 and revivified in 1920 by amalgamation with the Manchester Institute of Massage and Remedial Gymnastics, has an advisory committee containing the names of ten representatives of the medical profession. Standing for the same ideals of professional education and social service as does the medical profession itself, the Society appeals to physicians and surgeons to employ only those who have the right to subscribe themselves C.S.M.M.G. And the appeal seems to us fair and reasonable.

THE DEFENCE OF MEDICAL RESEARCH.

THE past year has seen a spirited assault on experimental medicine by antivivisectionists of various complexion. The newspapers have been full of letters from people with hazy views on medical progress and a warm sympathy with animals ; the false conception of vivisection as torture has induced several hundred thousand of our countrymen to sign petitions in favour of a Bill exempting dogs from experiment ; and the Royal Society for the Prevention of Cruelty to Animals has only just been saved from using its important influence in the same direction. Whilst we are confident that medical research has nothing to fear from an instructed public opinion, it is clear that ignorance falls an easy prey to sentimentalism and inaccurate statistics, and the necessity for experiment on animals needs reiterated explanation at the present time. Many Members of Parliament, themselves uninterested in the subject, have unwisely pledged their support to measures for the limitation of research ; the funds at the disposal of antivivisectionist societies are apparently considerable, and the different arguments against animal investigation are put well enough to convince many sorts of well-meaning people. Opposed to all this we have the general consensus of the medical profession, and the work of one small organisation which aims at influencing public opinion, the Research Defence Society. The profession, as a whole, though in favour of experiment, is somewhat indifferent to the controversy, having other things to think about ; the Research Defence Society has a small membership and therefore small resources. As Lord Dawson has pointed out it is the public that would suffer from a veto on vivisection and it is for the public to decide ; but the profession has a duty to declare its opinion and it is much wiser to strengthen the defence mechanism now rather than wait until the infection of sentimentalism has got a real grip of the community. The Research Defence Society describes itself as "a national society of men and women united to promote national health and efficiency, to bring about a better understanding of the value of medical and surgical studies and to expose the false statements which are made against them." As such it must appeal to public-spirited medical men, and as we have said before it should have a membership as wide as the Medical Register. Naturally the subscription to a propagandist body cannot be nominal, but it is small. Five guineas brings life membership ; members subscribe 10*s.* ; associate members 5*s.* ; whilst undergraduates or students are eligible for membership at 2*s.* 6*d.* a year. The journal of the Society, entitled *The Fight Against Disease*, may be had from the Secretary at 11, Chandos-street, London, W. 1.

FLEXNER DYSENTERY TREATED BY THE BACTERIOPHAGE.

THE use of the bacteriophage as a therapeutic agent has given rise to much debate. D'Herelle has advanced large claims for its utility in such infections as typhoid and dysentery, and it has also been employed in the treatment of septic conditions. The results reported by others, however, have not borne out the claims of its discoverer, although in other fields his extensive work has been very generally confirmed. It seems probable that if the agent is capable of being employed for the active destruction of bacilli in the body its activity should be especially obvious in such a condition as dysentery, in which the disease is local, the organisms do not invade the tissues to any marked extent, and the bacillus is one upon which the bacteriophage has a marked effect. We have recently received from the Malay States [1] a report of the treatment of 22 cases of Flexner dysentery by bacteriophage which was provided by d'Herelle himself, and therefore may be considered authentic and of undoubted activity. Dr. W. Fletcher and his collaborator state that dysentery is one of the three most deadly diseases in the Malay States—the other two being malaria and tuberculosis—and it may be taken that those are sufficiently well versed in the vagaries of the malady to be good judges of the usefulness of a new form of therapy. Their investigation [1]

[1] The Bacteriophage in the Treatment of Bacillary Dysentery of the Flexner Type. By W. Fletcher and K. Kanagaray. Bulletins of the Institute for Medical Research, Kuala Lumpur, Federated Malay States. No. 3. 1927.

iem to the conclusion that the treatment "had no ›parent influence upon the course of the disease ıe to this organism, nor did it eradicate the bacilli om the intestines of those to whom it was lministered." Three tubes of the bacteriophage were lministered orally, with an interval of 12 hours ›tween each dose; in some cases a second course as given. A daily bacteriological examination of ıe stools was made to observe any effect produced ; the treatment in causing disappearance of the ıcilli. Apparently there was no such effect; the ganisms remained present as long in these cases in controls not treated by the method. These sults accord with those of other observers. They e not, however, quite so clean cut as to condemn e bacteriophage out of hand as an impotent agent, ıd we should be glad to see an extended test of e treatment made by independent workers over ntrolled series of cases of acute bacillary dysentery, ing a bacteriophage of maximum activity for the ecific type of infection present. This should be ssible in a country such as Malaya, where the sease is exceedingly common.

THE BRITISH ASSOCIATION.

THIS year's annual meeting of the British Association r the Advancement of Science will be held at Leeds ıder the presidency of Sir Arthur Keith, conservator the Museum of the Royal College of Surgeons of ngland. The title of his address, which will be elivered in the evening of August 31st, is Darwin's heory of Man's Descent as it Stands To-day, and is, like other subjects to be considered, is likely arouse much interest among the general public, whom the proceedings of the Association are ›wadays reported at considerable length by the news- ıpers. The annual meeting has in fact two important nctions; it stimulates the curiosity of the masses ıd it gives an opportunity for scientific workers meet each other. Members of the Association who e not specialists and who wish to acquire general formation have once again an immense choice set fore them, but the days have gone by when a person average attainments and education might expect to derstand and enjoy the discussions and papers most of the sections. Though medicine does not ure in the programme there will be a large number papers on physiology, psychology, education, and her related subjects, and among the presidential dresses to sections will be those of Dr. C. G. Douglas the development of human physiology, and of . William Brown on mental unity and mental ssociation. Dr. F. A. E. Crew is to give an evening scourse on the germ plasm and its architecture, d a discussion on the chemistry of hormones will opened by Prof. G. Barger, Prof. H. S. Raper, r. F. H. Carr, Prof. J. C. Drummond, Prof. E. C. ›dds, and Prof. J. Mellanby. A paper on the effect mental stress on man will be contributed by Prof. S. McDowall; Dr. D. N. Buchanan will deal with e psychological effects of flickering light; Dr. W. Edridge-Green will read two communications colour-blindness; Dr. A. H. Mumford will discuss dy measurements and respiratory tests in connexion th the progress of school-children; whilst Dr. D. Gillespie will give a paper on the estimation character and temperament in the light of psycho- gical medicine. As is natural, there are to be many ntributions on biochemical subjects. Dr. W. Cramer ll speak on the requirements of the population in lk-fat (vitamin A) and the available supply; lonel C. J. Bond on the effects of some radiated d non-radiated stearols on the cellular constituents the blood; and Dr. E. R. Dawson and Mr. B. S. att on the action of pancreatic lipase. Among the any topics of more popular interest are the physical periority of the so-called uncivilised races, the ychology of special scholastic disabilities, "the portance and value to the Empire of the trans- ıntation of boys," the control of plant diseases, and school examinations. Mr. H. R. Silva will speak on the experimental control of introspection, and Mr. L. Wynn-Jones on the appreciation of wit. The relentless march of specialism is illustrated by the fact that the programme does not allow those who are interested in Mr. Wynn-Jones's paper to hear the observations of Dr. Marion Hirst and Dr. C. G. Imrie on the excretion of creatine.

B.C.G. VACCINE.

DURING the last two years we have frequently[1] referred to the work of Prof. A. Calmette, of Paris, who recommends general protection of children against tuberculosis by means of the vaccine B.C.G. The letters C and G in the name of this vaccine stand for Calmette and Guérin, who are responsible for its introduction, whilst the letter B stands for *bilié*, and refers to the method by which it is prepared. Tubercle bacilli are grown over a period of many years on glycerinated ox bile, and this medium so reduces their virulence that living cultures are apparently harmless even to newborn infants when given by the mouth. According to Prof. Calmette and his colleagues, three doses of such a culture given to children in the first fortnight of their lives —i.e., before they have been infected by other tubercle bacilli—produce a high degree of immunity against later infection by tuberculosis.

Not long ago we briefly reviewed [2] the evidence in favour of this important claim, and pointed out that more work must be done before it could be accepted. It may be of interest, therefore, to give a brief description of an independent investigation conducted at Barcelona by Prof. L. Saye [3] and other members of the medical faculty. Their preliminary communication records the results of treating 134 infants with B.C.G. vaccine given in milk by the mouth within 14 days of birth; it is stated that 203 children were actually treated, but many were lost sight of, and in other cases insufficient time had elapsed to allow of conclusions being drawn. The remaining 134 cases they divide into two groups: (*a*) 113 in which the infants were brought up in an environment known to be tuberculous, and (*b*) 21 in which no such contagion could be found. The total number of deaths was 26, giving a mortality of 15·7 per cent. in the (*a*) group and of 3·7 per cent. in (*b*); but of these 26 infants only eight died of tuberculosis or of infection that was probably tuberculous. The actual mortality from tubercle thus appears to have been almost exactly 6 per cent., though the figure is not definitely stated. Having regard to the difficulty of excluding the presence of tuberculosis in infants clinically, the death-rate probably offers the best available evidence, and these figures appear to be favourable. But unfortunately Prof. Saye and his colleagues present their figures in such a manner that it is difficult to arrive at definite conclusions. There are numerous tables showing the relation of an affected father, mother, or other relative to the degree of infection and demonstrating other points of interest, but there is none which shows at a glance the actual effect of the inoculation with B.C.G. vaccine. This would be regrettable but for the fact that the experiment as a scientific test was vitiated at the very beginning; the investigators state that whenever it was necessary they tried to ameliorate the condition in which the vaccinated infant lived, and that they removed those whose parents were gravely infected. Their inquiry, therefore, gives no information about the value of this vaccine in protecting infants who are living in ordinary slum conditions; it is admitted that hygienic measures alone can greatly reduce infant mortality from tuberculosis. All that can really be deduced from the facts given is that Calmette's vaccine, whether given by the mouth or hypodermically

[1] THE LANCET, 1925, i., 1352; 1926, i., 1046.
[2] THE LANCET, 1927, i., 936.
[3] Revista Medica de Barcelona, March, 1927.

(in a few cases) is quite innocuous, and that when its administration is combined with hygienic measures and with removal from sources of infection there is a considerably reduced mortality. It remains doubtful how far this result is due to each of the three factors.

THE ULTRA-VIOLET RAYS OF SUNLIGHT.

SOME interesting data have recently been collected illustrating the seasonal variations of the ultra-violet component of sunlight in Chicago. In a short communication to the *Journal of the American Medical Association* for July 16th Dr. Herman N. Bundesen and his co-workers give the results of systematic spectrographic records of the sun's rays for the period November, 1926, to May, 1927. The daily records obtained from plates taken with a diffraction grating compare very closely with those of the quartz spectrograph, and both are employed to illustrate the seasonal variation in the ultra-violet value of sunlight and to emphasise the screening effect of a smoke pall in cutting out the biologically active rays. In view of the work of Hess and Weinstock, who have shown that 3130 A.U. is the longest wave-length of antirachitic value, while the maximum of potency lies at 3020 A.U., it is interesting to note that from November to February only a low intensity of the region 3130–3030 A.U. was observed, while no rays shorter than 3030 A.U. were recorded for the same period. From this it would appear that the sun's rays during the winter are of no antirachitic value, and this is in agreement with clinical experience. From February onwards steady improvement was noted, and on May 16th 2990 A.U. was registered as the short wave-length limit. In considering possible substitutes for sunlight during the dark months the writers draw attention to the incandescent filament lamp as a source of near ultra-violet rays. The biologically active rays from 3100 A.U. onwards emitted by filament lamps are quenched by a glass bulb, but this can be avoided by making the bulb of quartz or vitaglass. In studying the properties of the latter and similar glasses, the writers confirm the findings of the Council of Physical Therapy (noted in THE LANCET of August 6th, p. 316) to the effect that vitaglass is almost completely transparent to the ultra-violet rays of sunlight. Vitaglass with a transmission spectrum extending to 2760 A.U. is evidently an efficient substitute for quartz in any work in which sunlight or the incandescent filament lamp is the source of ultra-violet rays.

OUR readers will regret to learn that Mr. Alban Doran is suffering from acute glaucoma, and is at present a patient in St. Bartholomew's Hospital, under the care of Mr. Foster Moore. His sight has been failing for time some—a calamity for anyone, but particularly for so active a student as Mr. Doran has been ever since he entered St. Bartholomew's Hospital almost 60 years ago. Even when he retired from active consulting practice in 1911, and had earned a well-merited rest, he returned to the Museum of the Royal College of Surgeons, where, as a young man, he had assisted Sir William Flower and afterwards Sir James Paget. He then devoted himself and his ripe scholarship to various voluntary tasks. He drew up a new catalogue of gynæcological specimens, and afterwards undertook and completed a descriptive catalogue of the great collection of surgical instruments and appliances preserved in the Museum of the College, a task which occupied him for 12 years. No one has worked for his profession more industriously and less selfishly than Mr. Doran, and we are glad to know that his old hospital is doing everything for his comfort and recovery.

TUBERCULIN DISPENSARY BENEVOLENT SOCIETY.—Patients may be sent to the Tuberculin Dispensary at 32, Fitzroy-street, W. 1, for consultation and treatment on Tuesdays and Fridays at 2.30 P.M. Medical men are invited to attend.

Modern Technique in Treatment

A Series of Special Articles, contributed by invitation on the Treatment of Medical and Surgical Conditions

CCXXXVII.

THE TREATMENT OF SINUSES.

II.* SINUSES IN SPECIAL SITUATIONS.

The Frontal Region.

HEAD sinuses in the frontal region are ofte associated with infection of the air sinuses, whe the treatment of the latter is the primary considera tion; this also applies to sinuses over the mastoi Sinuses elsewhere on the skull, especially those ov the frontal region which are higher up than th situation of the air sinus, may result from a specifi infection in the form of a gummatous inflammatio with necrosis, and in these days this possibilit is apt to be overlooked. When specific diseas is the cause the sinuses readily yield to th appropriate treatment for that condition, and d not require local intervention. If the discharge fro a sinus on the cranium is noticed to pulsate, it wi probably be an example of extradural abscess whic has found its way to the surface spontaneously bu has not sufficiently drained.

The Jaws.

Sinuses about the jaws are nearly always caused b pathological conditions of the teeth. Even whe these appear normal they ought to be suspected, an should be carefully examined and finally X raye More than once a tooth has been sacrificed and sinus cured when the dental condition was reported t be above suspicion. A tooth which becomes loose fro time to time or has been previously injured is often dead one, and keeps up an infection around the ro which in turn may be the cause of a sinus. Even the mouth is edentulous the jaws should be careful X rayed, since fragments of teeth buried and lo forgotten may yet be the cause of so much infectio as to give rise to a sinus. Unerupted wisdom teet may also be associated with inflammatory troub followed by the development of an external sinu

When a tooth is the cause of a sinus, the latt almost always heals as soon as the offender h been removed, irrespective of the duration of th sinus, which may have existed for years. If th correct tooth has been extracted and the sin persists for longer than a week or two it may be wi to explore the socket with a sharp spoon, f occasionally bone débris may be keeping up t infection. If a tooth is not the cause, a sequestru is almost sure to be so, and will probably be easi detected on examination of the infected socket, will be seen by the X ray. Tubercle and actin mycosis both occur in the jaws and may be the cau of sinuses, but neither is common in this situation.

The Neck.

In the neck sinuses are most often associated wi broken-down tuberculous glands, and are commone when the gland is deeply situated beneath t sternomastoid muscle. Such cases illustrate t general problem of sinuses due to tubercle. The ide treatment is to remove the focus, and if the group glands is localised, and presumably infected from t tonsil or nasopharynx, their removal by a we planned dissection is the method of choice. Lon standing sinuses are apt to be secondarily infecte and an operation which will open up fresh cellul tissue must not be undertaken until an attempt h been made to diminish such secondary infection careful and repeated dressing with a reliable antisepti for this purpose the 1 in 1000 perchloride of mercu is the best. When it is not deemed expedient excise the focus with the sinus, the judicious use the sharp spoon will be most helpful, but t

* General Considerations in Treatment of Sinuses appea last week.

ject in view should be to scoop out the tuberculous oris at the bottom of the sinus, and not merely to ape the track itself. When local interference is not ntemplated, the general principles in the treatment surgical tuberculosis must be conscientiously ried out—namely, rest, abundant food, fresh air, l sleep. Multiple tuberculous sinuses in the neck nish the most promising field for light therapy.

Sinuses resulting from vestigial remnants such as thyroglossal duct and the branchial clefts are en very small, but are in characteristic situations, l at some stage clear mucus escapes even though other times the discharge is purulent. For their e operative interference is essential.

Sinuses Connected with the Joints.

n the neighbourhood of joints tuberculous sinuses common. Here the treatment merges into that tuberculous joints in general; but I must insist the importance of prolonged rest, for it is the tinuity of the treatment rather than the method ich is likely to lead to success. For tuberculous uses in general the best local application is pure bolic acid, which can be applied on a probe, after ich the orifice of the sinus is plastered with a te made of iodoform mixed with 1/1000 perchloride mercury in watery solution. The application uires to be made every week or ten days, and the atment by rest is to be continued indefinitely. y few tuberculous sinuses will refuse to heal if treatment is sufficiently prolonged. It is in these es, however, that adjuncts such as artificial light, the injection of Beck's paste, and so forth most useful. Personally, I have always been ner chary about using vaccines, but if sinuses those under discussion have resisted treatment for g, then a judicious use of a vaccine may just happen start curative processes which might otherwise indefinitely delayed.

Sinuses in the course of the long bones are usually result of sequestra, and these must be localised, ntified, and removed. Very small sequestra may always be clearly seen on X ray photographs; usually those that do not show will be safely uded by natural processes. When such tiny uestra are suspected it is a good plan to lore the sinus occasionally with a probe, for this ns up the track and is often followed by the rusion of the reluctant piece of dead bone.

Sinuses about the chest are most commonly due to ealed empyemata, but they may be from erculous foci in connexion with the ribs, or genic infection with sequestra; or may result n disease in the spine, from which the pus may el forward to find its exit on the lateral aspect even the front of the thorax. Sinuses over the num are often of specific origin.

Abdominal sinuses near the umbilicus may be due a vestigial remnant connected with the omphalo-enteric duct. The discharge in these cases is racteristically mucoid. Tubercle not infrequently es rise to a sinus at the umbilicus. Sinuses in the region or over the gall-bladder area are often ociated with appendicitis, or gall-stones, or mpletely successful interference for these condi-ns, so that either overlooked enteroliths or left-over -stones are the commonest causes, and this sibility must first be eliminated. Occasionally a growth in the bowel not otherwise suspected es rise to a sinus, but in this instance the latter n the midst of a characteristically hard area, or induration soon makes its appearance. So-called -sided appendicitis, the result of infected sacculi he sigmoid, may also cause and keep up sinuses in left iliac fossa.

Sinuses on the posterior aspect of the abdomen probably associated with retroperitoneal infections perirenal phlegmons.

In the *perineum* the urethra and the anal canal or um are always to be looked upon as the most ly situations for causative factors. Any sinus in an inch of the rectum probably owes its origin to a communication with the bowel, and a diagnosis can be made by feeling for the small indurated area, which, in these circumstances, can always be detected between the mouth of the sinus and the anus, just as if a wire had been buried in the tissues. A sinus immediately behind the anus may be of congenital origin, the result of a post-anal dermoid or some remnant of the neurenteric canal.

About the coccyx sinuses are often of obscure origin, and it may be most difficult to find the cause and to bring about their cure. The prognosis should not be too optimistic.

A sinus on the *sole of the foot* is highly suggestive of a perforating ulcer, and it may be one of the earlier signs of a central nervous lesion, and is certainly often present when the latter is suspected, but the ordinary signs are not sufficiently clear.

Actinomycosis is characteristically associated with multiple sinuses. For this condition iodine administered in fresh milk has proved wonderfully successful. The treatment begins with 7 minims of the fresh tincture in 2 ounces of milk, thrice daily, after food, but the dose may be increased to 20 minims thrice daily without fear of evil consequences.

Residual sinuses—that is to say, cases in which the cause has been found and removed and the sinus still persists or sinuses in which all efforts have failed to disclose the causative factor may have to be dealt with. In these circumstances a whole variety of methods have been tried, and all have been more or less successful at times. I would place first the treatment by attention to the general health under the best possible conditions. Locally, the injection of Beck's paste has sometimes proved successful, and now one would be disposed to try artificial sunlight. But of the greatest importance is probably rest for the part with firm bandaging, so that the walls of the track may be kept in apposition.

If these measures are not applicable or fail, then certain sinuses which are not too long and which do not pass between structures of great importance may be laid open in their entirety, so as to convert them into open wounds. In other cases, scraping with a sharp spoon may set up a reparative process; or, better than either of these methods when applicable, is the excision of the whole sinus track.

G. GREY TURNER, M.S. Durh., F.R.C.S. Eng.,
Professor of Surgery in the University of Durham;
Surgeon, Royal Infirmary, Newcastle-on-Tyne.

THE LATE DR. W. R. S. WATKINS.—The death took place on August 14th at his residence in Eccles of William Richard Spencer Watkins, M.B., F.R.C.S. Edin., in his forty-ninth year. Dr. Spencer Watkins was born in South Wales and received his medical education at Cardiff and at the extra-mural medical school and University of Edinburgh. He graduated in medicine in 1903, and in 1908 became a Fellow of the Royal College of Surgeons. For a time he was house surgeon and senior resident medical officer at King Edward VII. Hospital, Cardiff; later he settled in the Eccles and Pendleton district of Manchester, where he practised successfully for many years. During the war he was a surgeon in the 19th General Hospital at Alexandria, afterwards acting as medical officer of the 42nd Divisional Train (R.A.S.C.). He leaves a widow and four children.

DONATIONS AND BEQUESTS.—Lieut.-Colonel Alfred Tennant Miller, of Great Somerford, Chippenham, left £2500 for such hospitals or infirmaries in London as the executors may select; £2500 to charitable institutions in Great Britain for the benefit of those who served in the Great War to be chosen by the executors; £500 each to the Glasgow Royal Infirmary, the Western Infirmary, Glasgow, the Victoria Infirmary, Glasgow, the Royal Infirmary, Edinburgh, and the Malmesbury Cottage Hospital.—Mr. Warren Tay, F.R.C.S., Croydon, Surrey, left £1000 to the London Hospital Medical College, £750 to the Royal London Ophthalmic Hospital, Moorfields, E.C., and £250 to the Queen's Hospital for Children, Hackney.—Mrs. Ellen Boyd, of Twyford, Berks, besides other bequests, gave £1000 each to King Edward's Hospital Fund for London and King's College Hospital, £500 to Maidenhead Cottage Hospital, £250 to the Royal Berkshire Hospital, Reading, and £1650 to other charities.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the 1926 statistics of four county boroughs and two urban districts :—

Name of district and mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Diarrhœa under 2 years.	Infant mortality.	Maternal mort. from childbirth.
Brighton .. .. (139,500)	14·0	12·5	1·08	1·86	1·3	1·9	11·0	67	4·8
Hastings .. .. (61,340)	12·6	15·1	1·17	2·49	2·0	2·5	8·0	64	1·3
Carlisle .. .. (56,140)	20·5	12·9	1·12	1·19	1·7	1·6	12·0	82	6·0
Bury .. .. (56,840)	14·3	12·8	0·83	1·20	2·7	1·9	2·4	76	9·8
Shrewsbury .. (31,960)	18·2	11·2	0·78	1·34	1·7	2·4	3·4	63	5·1
Weston-super-Mare .. .. (26,410)	12·1	12·6	0·68	1·63	1·2	2·2	0·0	75	6·2

Brighton.

Dr. Duncan Forbes says the outstanding feature of the year's work is the establishment of an orthopædic scheme which has been begun in a modest way. The corporation has arranged with the Royal National Orthopædic Hospital that they should allocate five beds at their Stanmore institution for the reception of Brighton cases. Payment is to be made at the rate of £2 per week per bed occupied for patients under 16 and £2 10*s.* for patients over 16. The hospital is to appoint an orthopædic surgeon to take charge of the scheme, to pay monthly visits to an out-patient orthopædic clinic in Brighton, and to recommend an orthopædic nurse, who shall be in the whole-time employment of the Brighton Corporation. Patients are being sent to the clinic from the tuberculosis dispensary and from the infant welfare and school medical departments. It is satisfactory to know, says Dr. Forbes, that there will be fewer cripples in the future and that what cripples there are will have the best treatment for the remedy of their disablement.

Although 2000 additional dwellings have been occupied since the war, there are still bad cases of overcrowding, especially distressing when a member of the family is suffering from open tuberculosis. Until these dangerous conditions are remedied the further building of new houses must continue. The first area for slum clearance has now been completed. The chief difficulty is that tenants whose average rental is 7*s.* to 8*s.* a week cannot pay the rent of the new houses which varies from 12*s.* 6*d.* to 15*s.*, and some of the families are really unfit for new houses. Under present circumstances it is difficult to arrange the necessary move round and the slum problem can only be dealt with in piece-meal fashion. To facilitate the move round the council have bought suitable houses, which after the present tenants have been moved to the new houses will be reconditioned to receive the tenants of the slum areas at a low rental. There were 13 notifications of ophthalmia neonatorum; three cases were very mild, but four were subsequently admitted to the Brighton Sanatorium; one child admitted in a hopeless condition on the tenth day of the disease lost the sight of both eyes, and another admitted on the twelfth day lost the sight of one eye. Out of the 105 milk samples examined for tubercle 13, or 12·4 per cent., gave a positive result. As a result nine cows were dealt with under the Tuberculosis Order, but in five instances no infecting cow was found, probably owing to drying off, removal, or slaughter before the farms were visited. The discover of tuberculous calves at the abattoir has led to th elimination of one or two tuberculous cows fro milk herds as the result of following up.

Hastings.

Dr. G. R. Bruce points out that the death-rate just over 15 becomes 10·8 when corrected for age an sex constitution of the population. The number new cases at the infant centres was about 77 per cen of the total number of births. The work at the tw antenatal clinics has made good progress, the atten ance at one being nearly double that of the previo year. The Fernbank Maternity Home, a voluntar institution, accommodated 100 confinement cases b could easily take 200. Forty of those admitted we municipal cases, for whom the corporation guarante the full fee of 2½ guineas. There is no waiting-list f patients with tubercle. Throughout the ye negotiations have continued with the Royal Ea Sussex Hospital for the provision of an orthopæd clinic, and it is hoped that this scheme will be progress during 1927.

Housing activities have included the completion 48 flats for the rehousing of tenants from the clearan scheme in the old town, also 50 steel houses on o estate and the commencement of 50 on anothe When these are complete the corporation will ha built nearly 500 houses since the war, but this w not, says Dr. Bruce, "solve the problem either overcrowding or of unhygienic houses, nor, unfo tunately, of the unsatisfactory tenant." The ma source of the water-supply is eight deep wells in t Ashdown Sand with a supplemental supply from t Brede River. The present supply is inadequate meet the full pressure of the summer season and t supplementary supply has to be chlorinated. Duri 1926 application was made to Parliament for power obtain water from an area in the chalk betwe Eastbourne and Brighton. The application w opposed by neighbouring authorities and thrown ou mainly on the ground that water-bearing areas near Hastings had not been exhausted. The successf solution of the water difficulty to meet present a future needs is one of the most pressing public heal problems before the corporation. During 19 88 cows were slaughtered at the knacker's establis ment within the borough under the Tuberculo Order, the majority coming from the milk-produci districts of East Sussex and Kent, and two fr dairy farms within the borough. The hours of brig sunshine registered during 1926 were 1588·5.

Carlisle.

Dr. Joseph Beard reports that 24 samples of fre cow's milk and four of pasteurised were examined tubercle bacilli. One sample from an outside da gave a positive result. The county veterina inspector examined 46 cows on the farm and fou three with disease of the udder. The city inspec had samples examined from a suspected animal each of two farms. As a result both were slaughte under the Order, and advanced disease was fou post mortem. Up to the end of the year the c poration had received the sanction of the Ministry the erection of 1344 houses—160 parlour and 11 non-parlour. Of these, 984 have been erect The sanitary inspector's report gives some p ticulars of the move round of the tenants. Thirty- new houses were built for the accommodation 38 tenants dishoused under an improvement sche Only six of the 38 elected to take the new hous and 32 had to be rehoused by the method of exchan In connexion with the demolition scheme 24 hou were erected on one of the estates, but only five of 36 tenants of the demolished houses would take new ones and the remaining 31 were accommoda by exchanges arranged through the sanitary inspect In the last case several of the tenants had alre moved once from another condemned area, and inspectors found great difficulty in getting priv owners to accept them for the second move.

Bury.

Dr. G. Granville Buckley says the worst feature in he 1926 figures is the maternal death-rate from hildbirth. Of the eight deaths, five were due to clampsia. Some of these deaths might undoubtedly e prevented, he says, if expectant mothers would ither consult their own doctor or attend at the ntenatal clinic. The antenatal clinic was attended y 52 new cases, the total births in the borough eing 816. The conversion of privies into w.c.s is roceeding very quickly; 1588 were dealt with uring 1926. The chief occupations of Bury are the anufacture of textile goods, machinery, paper, and lt hats. The sewage is of a complex nature, and ontains trade waste from tanneries, fell-mongers, ool-scouring, hatters, and breweries, and three eparate systems follow the sedimentation tanks at he sewage works—namely, 3 acres of double contact eds, 2 acres of percolating beds, and a recently nstalled unit on the activated sludge system worked n the surface aeration principle. At present the udge is disposed of by lagooning, but a complete udge pressing plant is being installed. Emissions of lack smoke which exceed the limit of two minutes per alf-hour allowed for mill chimneys are notified t once to the firm, in order that the cause may be moved promptly. This action is much appreciated y the mill-owners. Bury has had a public abattoir nce 1903. It is modern in every respect, with ilway siding and cattle dock, so that animals arriving y rail need not be driven through the streets.

Shrewsbury.

Dr. A. D. Symons claims that Shrewsbury has as mplete provision for maternity needs as any town its size. The births numbered 588, and the new ses at the antenatal clinic show a steady increase—iz., 59 in 1924, 94 in 1925, and 123 in 1926. The aternity home is conducted by the Nursing Associaon, and patients are examined at the antenatal inic before admission. Dr. Symons mentions as vidence of a "brighter Shrewsbury" movement he attention given to æsthetic considerations in chitectural development and to the repainting and reservation of the old black-and-white houses, and es on to say that the movement would receive a rther impetus if the town council would adopt ore efficient methods for the cleansing of the streets d the removal of refuse. The prosperity of the wn will be increased if cleanliness combined with ntiquity renders it more attractive to visitors. The ain streets now have a waterproof surface, he says, d should be swilled in the early morning. Sweeping the pavements opposite shops should not be rmitted after 9 A.M. Modern dust-carts with a low dy and an efficient cover should be substituted for he high carts, which create clouds of dust when a st receptacle is emptied into them. Refuse tips ed not be a nuisance, and an energetic supervisor ould be appointed to see that they are properly vered over with soil, &c. Shrewsbury is not a very noky place, but there are about a dozen works imneys which intermittently belch forth large antities of smoke, including three under the control the corporation. As the town lies low, smoke is t readily blown away, but tends to hang. The mestic smoke is being reduced by the large use of s. There are 2865 gas fires and 5623 gas cookers the 7000 houses. More houses were built last ar than in any year since the outbreak of the war—mely, 90 municipal, 76 by private enterprise with ate assistance, and 32 others. A further 101 unicipal houses will be completed during 1927.

In the selection of tenants preference is given to ose with large families. The practice of taking in dgers was one of the restrictions imposed on the nants, but a recent survey showed that lodgers ere being taken in 24 per cent. of the houses on he estate. In future application will have to be ade to the housing committee for leave to take dgers and will receive reasonable consideration. A campaign for cleaner milk was started during the year. The accepted limit for dirt in milk, says Dr. Symons, is two parts per 100,000. Proceedings were taken against a milk-seller whose milk showed 40 parts. The retailer pleaded a warranty; a summons was then issued against the wholesaler, but the magistrates dismissed the case. Another case was that of a cow-keeper who supplied milk 16 per cent. deficient in fat. An appeal to the cow confirmed the fact that the cows were giving milk thus poor in fat. The conclusion arrived at was that the cows were old, in poor condition, and badly fed, but that as there was no adulteration no legal action could be taken. Shrewsbury has a public abattoir but also two small private slaughter-houses.

Weston-super-Mare.

Dr. John Wallace mentions that two water-supply schemes are under consideration. The present supply from Banwell spring is a limestone water which is pumped to two reservoirs and to a water tower on Worlebury Hill (450 feet), which is capable of supplying the highest buildings in the district. The only streams in the district are "rhynes," by means of which land drainage is effected. The rhynes are considerably polluted by manured lands and pig and cattle sheds, and it is difficult to prevent this. Flooding causes complaints, and is relieved by the widening of culverts and the clearing of the rhynes. Gas is so universally in use for heating and cooking that the house refuse contains little ash. Also it is often difficult to see any smoke from which to judge the direction of the wind. Weston has a public abattoir and no private slaughter-houses. The hours of bright sunshine in 1926 were 1269·7, nearly 200 less than the previous ten years' average of 1454·2.

SCHOOL MEDICAL SERVICE.

—	No. on roll.	Average attendance.	Routine inspection.	Special re-inspection.	Per cent. of defects.
Blackburn .	17,065	15,009	4863*	6447	22·6
Coventry .	21,274	19,120	6428	8021	25·9
Scarborough	n.s.	n.s.	1315	1052	13·15

* With 1413 routine inspections outside the code groups, this is 6276. n.s., not stated.

Blackburn.

Dr. Oscar M. Holden describes the system of coördination by which, while each medical officer has his own duties, yet all share in the school work. Thus the medical officer of health is the school medical officer and assists with routine medical inspections as the need arises, and the assistant school medical officer who does the largest share of the school work is also assistant medical officer of health. The woman assistant medical officer devotes part of her time to school work, and the tuberculosis officer, who is also resident medical officer of the corporation hospital, is from time to time called upon to do routine school inspections. There is also close coördination in the work—for example, the record-cards of children who have attended the welfare centres are forwarded on to the school side upon the children reaching the age of 5. The children under 5 attending school remain under the care of the welfare department, and the health visitors continue to go to the homes when necessary. In school a "march-past" is made of these infants before the school medical inspector, and in this way obvious defects can be detected and treated. Then, again, the school dentist devotes 12 sessions to the maternity and child welfare department.

Dr. Holden deprecates the wholesale removal of moderately enlarged but healthy tonsils. Those whom he recommends for operative measures are the cases with enlarged, unhealthy tonsils and

adenoids, especially those who are mouth-breathers and whose past history consists of a succession of catarrhs and sore-throats. In his note on rheumatism he shows that in connexion with this disease it is imperative that a careful scrutiny be maintained on the condition of the throat and mouth in school-children. His very rational outlook has its result in the small proportion of parents who refuse to have the operations performed that have been recommended; out of 265 cases where treatment was advised 221 actually received operation under the authorities' scheme, and several others were dealt with through other channels. Special attention is given to after care of these cases at the clinic for remedial gymnastics in the form of breathing exercises and training in correct respiration, without which, Dr. Holden says, the operation of removal of adenoids is a waste of time and energy. The number of exceptional children noted is in general rather low, but accommodation seems to have been found for most of them, except that there is much need for more places in the residential open-air school. With the cripple children, however, the reverse is true. The scheme for the detection of crippling defects is certainly fairly comprehensive, including the work of an orthopædic surgeon, Dr. Briggs, and he is in close touch with the valuable clinic for remedial gymnastics; but there is no special physically defective school, which is obviously needed, and its provision could make it possible to reduce the unfortunately large number of children who have had to lose their treatment at the clinic owing to the inability of the parents to bring them.

Coventry.

Dr. E. H. Snell draws attention to the varying percentage of children who are said to require operative treatment for enlarged tonsils, and it is suggested that this depends so much on individual opinion that figures compiled by different doctors are of no comparative value. For instance, in 1914 and 1919, when an assistant school medical officer (Dr. Newton) was working alone, the percentage of cases referred for operation was 2·5 and 3 per cent. respectively; while later, when other doctors were also working, it was higher; 7 per cent. in 1925 and 16 per cent. in 1926. The ratio is reflected inversely in the proportion of those referred who were actually treated; for in 1925 this was 25 per cent., while in 1926 it was under 20 per cent.—i.e., out of five children who were recommended for treatment in only one was it actually secured. But the increase in the number of cases referred may be due not merely to personal equation but to increasing realisation of the value of removing a septic focus or pathway for infection. We note that last year Dr. Newton himself was specially investigating the subject of rheumatism, in which the value of efficient tonsillectomy is becoming widely recognised, particularly in reducing the liability to cardiac complications.

There seems to be a large number of delicate children in Coventry, and it is a sign of the sound sense of the city that the residential camp at Corley is being rebuilt, with accommodation for 90 instead of 30 children. Another indication of the wisdom of this authority is given by the fact that the school for mentally deficient children, which is doing excellent work, was established as far back as 1910.

The report of the school dentists alludes to the harm done to the teeth by soft food and fermenting carbohydrates which adhere to the teeth and gums. As to the causation of dental caries, there are several different schools of thought, one regarding as the essential cause the lack of vitamin D in the diet, and another blaming especially oral sepsis, and advocating mouth-washes, toothbrush drill, and the like. A third is that cited here, in favour of which there was striking evidence in the Birmingham report for 1925, where there is a comparison of the conditions of the teeth of the children in Birmingham with those in New Zealand. Those in the Dominion were immensely worse, although the standards of diet and of general hygiene are much better, th determining factor being apparently the larger amoun of sweets and biscuits eaten there, causing th carbohydrate fermentation alluded to by the Coventr dentists, Messrs. Raeside and Shelvin, who would however, of course, agree that the right idea c prophylaxis against dental caries is to use ever method and to interpret the terms correct diet an oral hygiene in the broadest possible sense.

Scarborough.

Dr. S. F. Linton describes the coördination c school and general public health work appropriat for a small area such as Scarborough. Child welfar work is carried out on the premises of the schoo clinic by the assistant school medical officer, D Annie Roxburgh. Debilitated children under schoo age continue under the care of the centre and th health visitors until they come to school, when the are transferred to the school medical service. A records are kept of all cases continuity of work maintained. It is much to be regretted that in the interest of "economy" the nursery school ha been closed.

There seems to have been a great improvemen in the cleanliness of the school-children of the boroug but ringworm causes much trouble and loss of scho attendance. Dr. Linton, for example, cites the case of child who has been kept out of school for two yea He wonders whether it would not be justifiable allow such children to remain at school provid that they wear linen caps. Other authorities ha found that infection is limited if under such a c the scalp is covered with a thick greasy ointmen but a far better method is the use of X rays, whi reduce the period of exclusion to two or three weel There are no special schools in Scarborough. The is less need for an open-air school in Scarborou Dr. Linton thinks, than in a dense industrial cent A special class is provided for the dull and backwa including many feeble-minded children, and t opening of the Orthopædic Hospital at Kirbymoorsi has marked an advance in the treatment of crippl for it affords institutional and specialist treatme Apart from this, Dr. Crockatt, the orthopædic surge holds a monthly clinic at the local hospital, where masseuse attends and gives instruction to parents.

MENTAL HOSPITAL REPORTS.

THE *Cumberland and Westmorland Mental Hosp* had 815 patients resident at the end of the ye There has been a marked diminution in the m admission since the war, and those sent in are nea all incurable. The superintendent feels that this m reflect an unwillingness to certify in early sta and regrets the necessity of having to refuse admiss to those who are willing to enter the hospital with certification. The recovery-rate was 32·7 per ce and the death-rate 6·7 per cent. The general hea was good, except for influenza. Parole on the est is allowed to 20 men but to none outside, and th are no open wards.

The *Glamorgan County Mental Hospital* at Bridg reports an increase of 73 in its population, chi males. This is ascribed mainly to the lowered dea rate—8·6 per cent.—and the smaller number relieved patients discharged. The number of patients—1076—is a record and means overcrowd The recovery-rate was 22·8 per cent. The numbe deaths from tuberculosis has fallen from 31 to Eighty post-mortem examinations were held. general health was good and free from zymotic dise apart from 84 cases of influenza. A dentist has b appointed to attend weekly. Parole is allowed bey the estate to 9 men and to 85 more within the grou but to no women, and there are no open doors ex in the convalescent villa. There is a small laborat and the visiting commissioners urge the appo ment of a technical assistant, so that full use ma made of it. General paralytics have not been tre

malaria as yet. Fourteen attendants and two nurses obtained their certificate in May.

The *City of Leicester Mental Hospital* at West Humberstone had 923 patients on its books on Dec. 31st, an increase of 33 during the year. So many reports speak of the urgent need for increased accommodation that it is interesting to find Dr. J. F. Dixon pleading, not for more beds in mental hospitals, but for decertification of a large proportion of their population, which might well be housed in special institutions for harmless and helpless dements. The ratio of Leicester "insane" to the city population is now 1 in 304; five years ago it was 1 in 355. The recovery-rate for the year was 44·2 per cent. and the death-rate 5·5 per cent. The cause of death was verified by autopsy in 82 per cent. of the cases. The general health in 1926 was good, except for some influenza. There were no cases of zymotic disease. Forty-eight per cent. of men patients and 37 per cent. of the women were on full or limited parole, and leave of absence was granted 1491 times to men and 1013 times to women. Seventy-seven per cent. of the patients were kept fully employed. Small parties of female patients went to the cinemas regularly and others for motor drives into the country. The farm and garden again yielded a substantial profit. A new laboratory assistant has been appointed and the pathological work has therefore been extended. Malarial inoculation therapy was tried for general paralytics; 3 out of 13 were discharged "recovered." Since 1924, when this treatment was first used, 7 per cent. of the cases treated have been discharged well, 15 per cent. improved mentally and physically, while 31 per cent. remain unimproved. An investigation into the incidence of syphilis in the chronic population of the hospital has been commenced. So far 15 per cent. of the men examined (201) have shown a positive Wassermann reaction. In the summer tinea marginata cruris was again troublesome on the male side. The visiting dentist supplies a report stating that he has treated 287 patients and inspected and passed 44 more. He remarks on the keenness of the nursing staff in carrying out the intensive course of dental hygiene which is of such importance in cleaning up a septic mouth. A complete set is given of all nurses and attendants who have obtained their M.P.A. certificate. The cricket team had a successful season.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED AUGUST 6TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 2 (last week 185); scarlet fever, 1234; diphtheria, 71; enteric fever, 73; pneumonia, 489; puerperal fever, 38; puerperal pyrexia, 73; cerebro-spinal fever, 9; acute poliomyelitis, 14; acute polioencephalitis, 1; encephalitis lethargica, 21; dysentery, 7; ophthalmia neonatorum, 104. There was 1 case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (1) from enteric fever, 31 (1) from measles, 2 (0) from scarlet fever, 13 (3) from whooping-cough, 24 (5) from diphtheria, 45 (7) from diarrhœa and enteritis under two years, and 16 (6) from influenza. The figures in parentheses are those for London itself.

The number of stillbirths registered during the week was 241 in the great towns, including 42 in London.

REMUNERATION OF CORONERS.—The coroners of Cheshire districts have sent in an application to the county authorities for increased remuneration owing to additional work caused by the provisions of the Coroners Amendment Act, 1926, and the requirements of the Home Office.

Special Articles.

COMPULSORY TREATMENT OF VENEREAL DISEASE.

THE NEW SOUTH WALES PLAN.

THE report of the Director-General of Public Health in New South Wales for the year 1925 contains paragraphs on the working of the system of compulsory notification of venereal disease under the Venereal Disease Act of 1918 (No. 46 of the New South Wales Acts of 1918). Notification is by number, not by name; if, however, a patient fails to continue under treatment till cured the medical attendant is required to report the name and address to the Commissioner, who is a medical practitioner nominated for the purposes of the Act by the Governor of New South Wales. The patient is then informed of the penalties to which he is liable unless he resumes treatment. In practically all cases where a patient can be reached resumption of treatment follows; in only a few instances, observes the report, has it been found necessary to resort to prosecution. The grave difficulty of this process of following up defaulters—a difficulty mentioned also in the recent report of the Scottish Board of Health—is due to the large percentage of persons who give the doctor a false name or wrong address. In 1925 it was necessary to notify 955 persons in New South Wales for failure to continue treatment; of these no fewer than 538 (about 55 per cent.) could not be traced owing to a wrong name or false address; 241 resumed treatment; and 176 cases were under investigation at the end of the year.

In England we still seem to be far from compulsory notification of venereal disease, and, except in local examples such as the Bradford Corporation Act of 1925, there is an evident reluctance to make it a criminal offence to fail to notify or to omit to undergo treatment. It is nevertheless interesting to study the features of a far-reaching enactment like the Venereal Diseases Act of New South Wales. Power was given to the Governor to bring the Act into force in different areas and at different times; it is now in force everywhere in New South Wales. In forbidding the advertisement of remedies, and in insisting that treatment of venereal disease shall be by medical practitioners only, the Act corresponds with our own Venereal Disease Act of 1917. But in many ways it goes much further. Under Section 4 a person suffering from this form of disease must, within three days of becoming aware of his condition, consult a medical practitioner, to whom he must furnish his correct name, occupation, and address, and to whom he must submit himself for treatment. Disobedience of this section is punishable with a fine of £100 or imprisonment for three months. The section includes a special provision for professional secrecy in the following terms: "Any medical practitioner who, otherwise than in accordance with the provisions of this Act, communicates to any person or in any other way makes known any name or address so furnished to him shall be liable to a penalty not exceeding £100 and shall be deemed to be guilty of professionally infamous conduct." Under Section 9 the medical practitioner must notify the Commissioner on a prescribed form within a prescribed period; failure to do so involves a fine not exceeding £20 on the first occasion and not less than £20 or more than £100 on any subsequent occasion. Marriage by a venereal disease patient while knowingly in an infectious stage is an indictable offence punishable with the substantial penalty of £500 fine or five years' hard labour or both. In this connexion strict ideas of professional secrecy are disturbed in a manner which anticipates a passage in Lord Riddell's recent address. If the doctor has reason to believe that a

person suffering from venereal disease intends to contract a marriage, he may (after notifying the patient of his intention) inform the person whom he has reason to believe to be the other party, or he may inform the parent or guardian or the Commissioner. Such communication is absolutely privileged. In addition to this protection (which is contained in Section 12), Section 19 enacts that all proceedings under the Act are to be privileged, and Section 20 forbids the publication of reports of any such proceedings unless with the written authority of the Commissioner. Medical practitioners can give certificates of cure or freedom from disease; and here it would appear that some kind of protection for the certifying doctor was deemed necessary. Section 18 states that "No certificate, notice, or other communication, verbal or in writing, given by a medical practitioner for the purposes of this Act, bona fide and without negligence, that any person is suffering from venereal disease shall be made the ground of any legal proceedings civil or criminal." Practitioners in England, with recent experience of the heavy personal liability involved in certification under the Lunacy Acts, will notice the language of the New South Wales Act; this kind of protection may be somewhat illusory, since it is always possible to get a claim placed before a jury by imputing bad faith or negligence.

Other features of this very comprehensive Act may be mentioned briefly. As already indicated, patients must remain under treatment till they have received a certificate that they are cured or free from their disease. They must notify any change of address, and there is provision for change of medical attendant. Treatment must continue till cure is effected notwithstanding the fact that the patient has ceased to be liable to convey infection. The patient's name and address must be reported on failure to continue treatment. Patients (or, in the case of children, their parents or guardians) are to receive special medical warning of the nature of their disease and of the dangers of contagion. It is made an offence to work in a shop, factory, hotel, restaurant, &c., when suffering from venereal disease. To infect anyone knowingly is punishable with £100 fine or 12 months' imprisonment or both. Brothel-keepers commit an offence if they knowingly allow the presence of a female patient, and certificates of cure or freedom from disease are not to be used in relation to prostitution. Departmental regulations can be made for various purposes such as the treatment and examination of patients and the supply of drugs. While the New South Wales Act is by no means unique, it is a useful type for those who would like to frame a common measure for adoption by international convention. In this respect the record of its actual working is particularly valuable. Should such legislation become universal, the old professional ideals of secrecy would become impossible; but the doctor's duty or power to disclose confidential information is naturally a very different matter when a new range of criminal offences is introduced in relation to treatment for venereal disease. Such new legislation would extend the occasions on which a doctor, like any other citizen, may feel obliged to warn the proper authorities that a crime has been, or is about to be, committed. Nevertheless, it would seem desirable that a patient should be able to obtain and rely upon a specific assurance that, so long as he followed the prescribed treatment, secrecy would be absolute; at the same time he should be specifically warned that if he failed to continue his treatment, or if he did not do his best to facilitate his cure, the privilege of secrecy might be withdrawn.

LONDON FEVER HOSPITAL.—The total income of this hospital last year was £22,911, over £1600 less than last; and to meet the deficit the committee has had to increase the overdraft at the bank, which now amounts to £4600. There is an urgent need for reconstructing the old isolation block, but £10,000 would be required for this purpose. Patients' fees last year amounted to £14,748.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

The Mississippi Floods.

THE gigantic task of relieving the victims of the floods in the Mississippi Valley has now virtually ended and the American Red Cross has been able to close its local headquarters at New Orleans. More than half a million people have been helped by the Red Cross and coöperating agencies and subscriptions to the Relief Fund have amounted to over 16 million dollars. As the floods subsided, and the population was able to return, their health was with difficulty maintained. Inoculation against typhoid was done on a large scale, sewage disposal was regulated, water supplies were purified, dead animals were buried with the help of seven tons of dynamite, and an active antimosquito campaign was started, in the course of which 2480 barrels of oil and 210,750 yards of mosquito netting were used. No serious outbreak of disease has been reported; indeed, it is said that morbidity this year has been below normal. The Red Cross has furnished returning refugees with two weeks' rations, live stock and poultry, and necessary household equipment, and has impressed on them the need for observing elementary principles of hygiene.

Typhoid Fever in Montreal.

For some time sanitarians in the United States have been aware that there was an epidemic of typhoid fever in Montreal, but in spite of repeated efforts it appeared to be impossible to get a full statement of the facts. Recently, however, with the permission of the Deputy Minister of Health of Canada, the Surgeon-General of the U.S. Public Health Service appointed a board of investigation. Their survey occupied the last half of the month of June and they have now reported. Apparently the Montreal epidemic began in February and went on intermittently until well into the summer. Between March 1st and June 28th there were 4755 cases of typhoid with 453 deaths. The board consider that it was due to infection of milk delivered by the Montreal Dairy Company. "The preponderance of evidence," they add, "is that a very considerable proportion of the infected milk was passed through and distributed from the plant without being subjected to pasteurisation treatment. The medical officer of health seems to have had his hands tied through lack of personnel, and although there are over 40 pasteurisation plants in the city there is only one person engaged to inspect them and he has had other duties besides. On the question of responsibility the board report as follows:—

"Our definite impression is that the city health officer of Montreal has honestly and sincerely recognised his responsibilities during the epidemic and has done his best to render efficient service under most difficult and trying circumstances. It is evident that he should be given ample authority and adequate efficient personnel at once to cope effectively with the present typhoid situation and with other serious preventable disease situations which are likely under existing conditions to develop in Montreal in the future . . . . Since the epidemic began the city health forces have been augmented by the temporary detail of two sanitary engineers and one sanitary inspector from the provincial health department. This provincial force took charge of the milk plant and the creamery of the Montreal Dairy Co. Ltd., on May 21st and apparently has managed them since in a highly efficient manner."

The board go on to suggest that steps be taken to bring about "radical improvement in sanitary conditions under which milk and milk products are produced, handled, or processed in the city of Montreal or in any other place in the Province of Quebec within a radius of 100 miles of the city of Montreal for export to the United States," and recommend that "such milk or milk products after reaching points to which shipped in this country and before being distributed to consumers be pasteurised or otherwise processed under official supervision so as to be rendered free from typhoid, tuberculosis, or any other infectious

:ely to endanger human health." As a result of e report the use of Montreal milk and cream on ning cars bound for the United States has been rbidden. New York City has placed an embargo i milk from Montreal and its vicinity, while the ew York State Department has issued a warning that ontreal is not a comparatively safe resort for summer sitors.

The Drift to Big Towns.

A recent study by the Connecticut State Depart-ent of Health shows that 80 per cent. of towns with population of less than 1000 are without medical actitioners, and in about one-third of the towns in e State there is no resident doctor. The problem not confined to one State and has been receiving tention for some time. One solution which is often oposed is the establishment of health centres, with cilities for the practice of modern medical methods the less densely populated areas.

RED CROSS WORK IN 1926.
REPORT OF THE JOINT COUNCIL.

THE seventh report of the Joint Council of the rder of St. John of Jerusalem and the British Red oss Society, which has just been issued, covers e period from April 1st, 1926, to March 31st, 1927, id may be obtained from the offices of the Council ; 19, Berkeley-street, London, W. 1. The work of ie Council is distributed among committees specially t up to deal with medical services, auxiliary hospitals, nergency help, home service ambulance, tuberculosis, id hospital libraries. Report on the voluntary ospitals in Great Britain is reserved for separate iblication in October. The present report, which overs the other branches of the Joint Council's work, cords a gratifying revival of enthusiam for all its anches in most of the counties throughout the nited Kingdom.

Auxiliary Hospitals.

The main work of this department consists in elping officers suffering from tuberculosis, making ood the hospital stoppages during sanatorium eatment, and giving additional help in institutions here the grant paid by the Ministry of Pensions does ot cover the fees. Assistance is also rendered in cases here the Ministry of Pensions considers treatment dvisable but not absolutely essential. Applicants re finding it increasingly difficult to satisfy tribunals iat their disability is due to war service, and the ouncil comes to the aid of cases in which immediate eatment is essential pending investigation of claims. ast year 44 officers were sent to winter abroad, 3 at Montana (Palace Hotel), 8 at San Remo (Sunny-ank), 5 at Arosa (Sanatorium Altein), and individuals lsewhere. The Hospital for Officers at Brighton as now only 25 beds, mostly occupied by medical ases, a large proportion of them being duodenal lcer. The average age of the 85 patients admitted o this hospital during the year was 45 years.

Home Ambulance Service.

This service is solving one of the country doctor's reatest difficulties by bringing serious cases of accident r disease rapidly to the spot where they can be ost efficiently treated. Although ambulances to the alue of more than £100,000 have been provided by he Joint Council, the responsibility for running, ousing, and maintaining them and for raising funds s undertaken by voluntary workers, many of whom ffer to tend the patients during the journey, whether y day or night. Arrangement is now being made or ambulances to work with the lifeboats, cars tanding by ready to complete the work which life-oats have begun. Another recent development is he mitigation of road accidents. Last year, it is ecalled, 138,774 persons were killed or injured by ehicles on the highways, and the Ambulance Com-nittee has accepted the task of coöperating with the olice and the automobile associations in organising an efficient road service. The aim is to secure that one or more persons able and willing to give first-aid, and possessed of the necessary training and equip-ment, shall be within easy reach of the scene, wherever an accident happens, on any of the more frequented roads of the country. This will mean training sections in the smaller towns and villages to be linked up with the larger units. At some points first-aid boxes with bandages and dressings will be provided on busy roads, week-end patrols with splints and other equipment and, if necessary, tent or other shelter for injured persons at a convenient point. The total number of ambulance stations in the country equipped by the Committee is 326, not counting 50 ambulances affiliated to the service. A certain number have been released during the year by the municipalisation of the ambulance service in some of the larger towns.

Mobile X Ray Service.

This is a unit comprising a 16-inch induction coil outfit with mercury interrupter and rectifier run by an 8 kilowatt direct current dynamo off the 35 h.p. Fiat car engine and developing 125 volts with a maximum output of 70 ampères. The unit makes it possible to take any kind of X ray photograph of patients confined to bed. There is also a full-size radiographic couch available for work in the smaller hospitals in and around London. All the reports are made by a member of the Institute of Radiology.

Tuberculosis.

A grant of £2950 was made by the Tuberculosis Committee to the Factory in the Field, Leeds, where of the 92 men employed 62 are ex-Service pensioned tuberculous men. A grant of £3500 was also made to the Central Fund for the Welfare of Tuberculous Persons to establish a firewood factory in London to employ tuberculous pensioners ; owing to unforeseen difficulties the factory has not so far paid its way. Scio House, Putney, continues to meet the need of a home for ex-officer tuberculous patients.

The Services.

ROYAL NAVAL VOLUNTEER RESERVE.

D. A. Imrie, late Temp. Surg., R.N., to be Surg.-Lt.
Surg.-Lt. F. E. Stabler to be Surg.

ROYAL ARMY MEDICAL CORPS.

Capt. H. R. L'Estrange, half-pay list, late R.A.M.C., on completion of a period of five years on the half-pay list, retires on retired pay on account of ill-health and is granted the rank of Maj.

Capts. F. A. L'Estrange (Prov.), W. G. D. McCall (Prov.), J. M. Macfie, and H. N. Stafford to be Majs.

To be Lts. on prob. : J. M. Quinlan, L. R. S. MacFarlane, M. F. N. Griffin, J. J. O'Dwyer, W. F. Lane, Temp. Lt. de Lisle Carey (and relinquishes the temp. rank of Lt.), Temp. Lt. H. A. Ferguson (and relinquishes the temp. rank of Lt.), J. H. Anderson, M. G. de L'Isle Sturm, and D. B. O'Sullivan-Beare.

Lts. J. M. Quinlan, L. R. S. MacFarlane, and J. H. Anderson are seconded.

Lt.-Col. H. W. Symons resigns his commn. and is granted the rank of Maj.

Capt. J. Cohen, from Hygiene Cos., to be Capt.

ARMY RESERVE OF OFFICERS.

Lt. C. W. Simpson, from R.A., Reg. Army Res. of Off., to be Lt.

ROYAL AIR FORCE.

C. Sempill de Segundo (Maj., R.A.M.C. (T.F.) (retd.)), is granted a temporary commission as Flight Lt.

The undermentioned officers are granted temporary commissions as Flying Officers on attachment to the Royal Air Force : Temp. Lt. A. P. McClare, Gen. List, Army (Dental Surgeon), and Temp. Lt. S. McC. Craig, Gen. List, Army (Dental Surgeon).

The undermentioned relinquish their temporary Royal Air Force commissions on return to Army duty : Flight Lts. A. Rhodes and N. F. Smith (Capts., Army Dental Corps).

INDIAN MEDICAL SERVICE.

Lt.-Col. E. E. Waters retires.

Correspondence.

"Audi alteram partem."

THE TOXÆMIA OF ACUTE INTESTINAL OBSTRUCTION.

To the Editor of THE LANCET.

SIR,—One of the most striking points brought out by Mr. Brockman's lecture, which you published last week, is the close relationship of this toxæmia with persistent vomiting. When vomiting is marked, whether in the experimental animal or in the human subject, the "toxæmia" is marked; when vomiting is not marked or is absent toxæmia is less evident or is absent. In a dog a (duodenal) "loop was entirely cut off from the rest of the gut whilst the blood and nerve-supply remained intact"; the continuity of the gut was assured; the animal "suffered no acute symptoms, neither did it vomit." In my view it suffered no acute symptoms, *because* it did not vomit. In the human subject the same relationship holds. Mr. Brockman cites the case of a man from whom he removed a gangrenous appendix. In the early hours of the fourth morning the patient was so ill that death appeared imminent; as the result of treatment (injection per rectum of human bile and morphia) the vomiting stopped and the patient improved. On the tenth day acute obstruction was diagnosed and a complete obstruction was found, though just before the operation the patient was smoking a cigarette, had a pulse of 70, and a soft abdomen. He felt so well as to be surprised at the request for a further operation, and apparently only hesitatingly gave consent. Are we to suppose that this man was not suffering from a toxæmia? If so, we must believe that acute intestinal obstruction per se causes no toxæmia.

I suppose every medical man of any experience has missed cases of intestinal obstruction because the signs were absent, especially the sign of persistent vomiting. Here is one:—

A few weeks ago I opened the abdomen of a young man whose state was undiagnosed. He had been "seedy" for four or five days before being sent into hospital; he had had a previous attack of colicky pains some three or four months before. When I saw him he was lying in bed looking pretty well, with a quiet pulse, no fever, moist tongue. The abdomen was generally and slightly distended. He had vomited but once or twice and was constipated. Complete obstruction by a Meckel's diverticulum was found. The lower ileum naturally was implicated. The gut immediately above the obstruction was enormously distended; it was as big as a man's forearm, was dark purple in colour; the peritoneum over it was fissured. It reminded me of the state of the uterus in cases of concealed accidental hæmorrhage. The patient died.

Here is another example, slightly different:—

A woman was admitted as a case of appendicitis with intestinal obstruction. A mass was present on the right side of the abdomen; the patient was very ill. Vomiting had been little marked. Eight or 12 inches of the lower ileum were black in colour, turgid in consistence, and stinking. At the base was a band which was the appendix; this long before had been inflamed and its tip become adherent to the base of the mesentery, a loop being formed through which a coil of gut had passed. The appendix and the gangrenous gut were excised; the cæcum was closed and the lower end of healthy ileum brought out on to the abdomen. Death on the table was expected, but according to the anæsthetist distinct improvement occurred with excision of the affected gut; the patient recovered and the wound healed by first intention. She awaits a second operation.

Clearly, in both of these cases obstruction had existed probably several days before the patients had been sent into hospital. In each the condition was undiagnosed or only recognised late, mainly because vomiting had not been marked, and with this the general condition of the patient had remained so good. Delay in the onset of persistent vomiting is a common feature of low obstruction; when obstruction is high—as when a duodenal loop is formed experimentally—vomiting occurs earlier, and th case is correspondingly more serious.

The use of bile as a rectal injection in cases o ileus has been urged before. Its modus operand as Mr. Brockman states, requires working out. Th majority who use it seem to think it influence peristalsis, opening the bowels with passage of flatu Whether it acts in this way; or, as Mr. Brockma seems to suggest, by affecting in some peculia manner the mucosa in higher reaches of the gu after absorption; or whether the results obtaine with it are merely coincidents, as your leading artic supposes possible, further inquiry may show. Th point to be stressed is this:

"In most cases after the first rectal injection of human bi the vomiting stops forthwith, and even if this is not th result at once it is very much diminished and an increas in the bile given will secure the desired result." (Brockmar

That persistent vomiting can thoroughly upse people, and create a feeling and appearance of desperat illness, even in the absence of any intestinal disorde is sufficiently evident. Thus, death from persisten sea-sickness—from the vomiting alone—has occurre A comparable condition occasionally is seen in pre nancy; persistent vomiting in mid-pregnancy creat all the appearances of a grave toxæmia. That th vomiting is the cause of the toxæmia, not that toxæmia precedes and causes the vomiting, wa thrashed out in your correspondence columns in 192 Stop the vomiting and you cure the patient. It is th same in intestinal obstruction.

But just as obstetricians (yet not all) impute th pernicious vomiting of pregnancy to a precedin toxæmia, so surgeons, basing their opinion on exper mental work, impute the toxæmia of acute intestin obstruction to absorption of poisons from the conten of the obstructed gut. But the evidence for this vie is not beyond criticism—as in some part I hav shown. Here is a further criticism. It has bee argued that the pressure within the obstructed gu rises enormously, and that this favours absorptio But it is plain, if the pressure within the obstructe gut does rise to any great extent, and remains raise that the capillaries in the intestinal wall will b correspondingly compressed and even occluded, an that the circulation through this part will be material diminished or even stopped. That such occurs common knowledge; it explains the changes in th gut and the growth of bacteria within the lume How then can poison from the contents of such a co be absorbed? It is manifest that this argument invalid. The evidence is that when the gut becom obstructed fluid is poured into the lumen of th obstructed part, causing the distension of the gut an affording the material for the copious vomiting, an ultimately the dehydration of the patient. Apa from hepatic activity, by which nocuous bodi absorbed by the gut are rendered innocuous to th systemic blood—though the liver seems unable destroy the products of intestinal gangrene—the is reason to think the poisons within the lume formed in intestinal obstruction are not absorbe —that indeed, according to the site of the obstructio they are to a large extent voided.

I am, Sir, yours faithfully,

R. H. PARAMORE, F.R.C.S. Eng.

Rugby, August 13th, 1927.

SINGER'S ORAL METHOD OF LIPIODOL INJECTION.

To the Editor of THE LANCET.

SIR,—The above method is so satisfactory that brief description of it may be of interest to tho by whom it has not yet been tried. If the patient full coöperation can be obtained it involves litt discomfort. On a recent visit to this country, Dr. J. Singer, of St. Louis, kindly came to the City of Londo Hospital for Diseases of the Heart and Lung Victoria Park, E., and demonstrated his method. W were impressed by its ease and simplicity, as well

he radiograms obtained. We have since tried method with very satisfactory results.
ie patient sits on a chair and leans towards the to be injected, the head supported by his hand. c.cm. syringe is filled with well-warmed lipiodol. he syringe is attached a smooth-ended cannula, h 10 cm., bore 3 mm. The tongue is protruded ir as possible. This is held as in laryngoscopy. end of the cannula is placed over the base of tongue between the uvula and the side of the ynx. No part of the mouth must be touched. oil is now injected slowly while the patient is uraged to breathe deeply. No local anæsthetic sed, the only preparation needed is the usual for iodine idiosyncrasy, and of course to empty, osture, as far as possible the cavities in cases ronchiectasis. Should the patient be found erant it is an easy matter to revert to the thyroid method. In one recent case, for example, irst drops of oil induced a violent paroxysm of hing and the expectoration of large quantities of Therefore the oral method was abandoned and cricothyroid membrane method, with the usual tion of cocaine, used and no difficulty was rienced. The essentials of the oral method appear the full protrusion of the tongue producing closure ie œsophagus and deep inspirations throughout whole proceeding.
e method is not suitable for young children or e a picture of the apex is desired.

We are, Sir, yours faithfully,

F. G. CHANDLER,
Physician;
W. BURTON WOOD,
Assistant Physician, City of London Chest
gust 9th, 1927. Hospital, Victoria Park, E.

D CELLS AND HÆMOGLOBIN NORMALS.

To the Editor of THE LANCET.

R,—I have read with interest the annotation his subject in your issue of August 13th. The tions raised therein have to do with what may alled the physics of the blood. In this depart- of investigation the blood is to be regarded mixture of two constituents only, serum and oglobin, in varying proportions, and no con- ons can pretend to accuracy which do not take consideration in every equation the specific ties of the blood, of the serum, and of the oglobin. Given these data, which can be easily accurately determined, and an adequate alge- al technique, a number of indisputable con- ons can be established and incorporated in a l table. A definition of "standard aqueous oglobin" would be required, and a convention ld be arrived at as to the number of the red that should be contained in one cubic millimetre althy blood. The number 5,000,000 is a very enient one for purposes of calculation and for reason, if for no other, should claim precedence. the aid of this table any of the questions your le suggests can be easily answered as well as s of perhaps greater interest and importance.

I am, Sir, yours faithfully,

ton, Lancs, August 14th, 1927. B. DERHAM.

ALPATION IN EXAMINATION OF THE APPENDIX.

To the Editor of THE LANCET.

R,—Mr. J. W. Dowden, while discussing chronic ndicitis at the Section of Surgery of the B.M.A. al meeting (THE LANCET, August 13th, p. 333), ed to the necessity for judicious palpation in to ascertain the site of the main tenderness. any cases it is of the greatest use to employ two s, one of the two being the patient's right hand. right hand of the examiner having been used ly to touch over and around the suspected area aced upon it, and the patient is instructed to press on the examiner's fingers with the right hand; instruction is given that if tenderness results the patient is causing it. Invariably a free and full palpation of the appendix results whether tenderness be elicited or not; the appendix may be grievously affected without the slightest tenderness, and in this contingency it is all the more completely palpated, especially if affected. Adjuvant to this method, and in order to make assurance doubly sure, deep palpation while the patient elevates the whole of the extended right lower limb, with the right knee rigid, can be readily practised. I have frequently found the successive use of the two methods to clear the issue and to enable a correct diagnosis to be made in cases deemed doubtful or difficult to diagnose.

I am, Sir, yours faithfully,

R. CUNNINGHAM AFFLECK.
Royal Medical Society, Edinburgh, August 12th, 1927.

ASTHMA AND ARTHRITIS IN ALTERNATION.

To the Editor of THE LANCET.

SIR,—Dr. Wigoder's report in your issue of August 13th of a case of alternating asthma and rheumatoid arthritis, leads me to give a brief account of a similar case under my care at present.

Miss N., aged 70 years, first developed asthma in 1918. The following year the asthma having been controlled by vaccine treatment, she developed acute infective arthritis, the metacarpo-phalangeal and knee-joints being those chiefly affected. During the onset of the arthritis the asthma completely cleared up. The arthritis was treated with rheumatism phylacogen (P. D. and Co.) and after a prolonged course involving large doses the pyrexia disappeared and all active trouble in the joints subsided. A short while after this, in 1921, the asthma again returned, and the two conditions have relapsed, although mildly, alternately ever since. I am now on the track of an intestinal organism, a non-lactose-fermenting bacillus, which I hope is the cause in some way of both conditions, and that a further course of autogenous vaccine from this source will arrest both conditions.

As your correspondent mentions the rarity of this condition I thought an account of this case would be of interest.—I am, Sir, yours faithfully,

HAROLD O. LONG.
Stormont-road, Highgate, N., August 13th, 1927.

OTITIS MEDIA FOLLOWING NASAL SYRINGING.

To the Editor of THE LANCET.

SIR,—I have recently met with two cases of acute otitis media which resulted from the using of a syringe for douching the nose.

A. B., a girl of 18 years. After an operation on the nose for right-sided ethmoiditis she was recommended to use a syringe for cleaning out her nose. Two weeks later she attended with a subacute otitis media on the right side. This subsided, fortunately without an operation, on altering the nasal treatment and discontinuing the use of the syringe for the nose.

C. D., a man of 20 years. He had been suffering for some months with ethmoiditis on both sides and this had become much worse lately. Under treatment his condition was improving until, unfortunately, he was told to use a syringe for his nose. When he was next seen about a week later he had acute suppurative otitis media in both ears, with the usual severe symptoms. His tympanic membranes were incised and the ear condition went no further. He was advised to use the syringe no more, and to sniff the lotion up his nose instead. He had no further ear trouble.

Cases such as these are of frequent occurrence. With an ordinary simple catarrhal condition of the nose, methods other than sniffing the lotion up the nose often lead to middle-ear infection, either acute or chronic. Sniffing up a nasal douche creates a negative pressure in the nose and postnasal space, so that any infected material tends to be aspirated from the region of the Eustachian tubes. In

syringing, on the other hand, fluid is forced into the nasal recesses, and the Eustachian tubes are facing in the direct line of fire. Also, with a glass boat the head is tilted back and fluid is swept over the Eustachian openings.

I am, Sir, yours faithfully,

C. HAMBLEN THOMAS, F.R.C.S. Eng.

Harley-street, W., August 9th, 1927.

Obituary.

HENRY HARVEY LITTLEJOHN, M.B., B.Sc., F.R.C.S., F.R.S. Ed.,

REGIUS PROFESSOR OF FORENSIC MEDICINE, UNIVERSITY OF EDINBURGH.

WE regret to announce the death of Prof. Harvey Littlejohn, Professor of Forensic Medicine in the University of Edinburgh, which occurred on Tuesday last in a nursing-home in Edinburgh. He had been in delicate health for some time.

Henry Harvey Littlejohn was the only son of Sir Henry Duncan Littlejohn, who preceded his son as Professor of Forensic Medicine in the University of Edinburgh, and who was President of the Royal College of Surgeons of Edinburgh and medical officer of health for the city. Harvey Littlejohn was born in 1862 and received his medical education at Edinburgh University, where he graduated in medicine in 1886, taking later the B.Sc. and the F.R.C.S. Edin. After qualification he studied in Vienna and Berlin, and early manifested an intention to follow in his father's footsteps, for after holding posts at the Fountain Bridge Dispensary and the Royal Maternity Hospital at Edinburgh, where he worked under Sir Halliday Croom, he became medical officer of health for Sheffield. He held this post for six years, and returned to Edinburgh in 1897 to take up his appointment as Lecturer on Medical Jurisprudence and Public Health in the Edinburgh School of Medicine. He came to this post with considerable experience of its requirements, as, before proceeding to Sheffield, he had assisted his father in his departments along many lines of analogous work. In 1906 he was appointed Professor of Forensic Medicine upon his father's retirement, and he occupied the chair until his death.

During 21 years of administrative work Harvey Littlejohn gained a high reputation as a wise and tactful administrator and a learned medical jurist. His outlook on forensic medicine generally can be gathered by reading his book on the subject, which is not an ordinary text-book, but rather a well-catalogued medico-legal museum, containing admirable illustrations of post-mortem conditions in the circumstances attendant upon murderous attacks, serious accidents, and infanticide. The full descriptions attached to the pictures has made the book of great value to students and also to practitioners when called upon to study the medico-legal aspect of cases occurring in practice. His analytical method of approaching difficult subjects was well illustrated in all his writings. In a paper which he read before the Medico-Legal Society some three years ago on the subject of judicial hanging, he explained what the actual lesion to be arrived at is, how the "drop" is adjusted towards this end, and with whom the responsibility rests for the length of the "drop" and the situation of the knot; and he excelled in making similar controversial subjects clear, as he showed frequently when giving expert evidence in criminal cases. Other written works displaying the same power of imparting sound teaching and information in a simple way are a report on "Ten Years' Notification of Infectious Diseases in Edinburgh," an essay on "The Causes and Prevention of Smoke," and the health reports dealing with the city of Sheffield over the period of his office there.

At the International Medical Congress, held in London in 1913, Littlejohn was President of the Section of Forensic Medicine, a recognition of status which was well merited. At the time of death he was President of the Medico-Legal Soci and the representative of Edinburgh University the General Medical Council. In all his public w he impressed his colleagues with his capacity a judgment, while his fascinating personality had gai for him a large circle of private friends.

WILLIAM ALEXANDER MACKAY, M.D., F.R.C.S. EDIN.

Dr. W. A. Mackay, of Huelva, Spain, who recen died in Ross-shire, was the youngest surviving son the Rev. John Mackay, of Lybster, in Caithn Educated at the Royal High School of Edinbu and at the University, he graduated in medicine 1883, and immediately went to Spain to assist brother, the late Dr. John Mackay, who was c medical officer to the Rio Tinto Copper Compa His surgical skill very early became evident, reputation grew, and he was soon appointed c sulting surgeon to the company, a post he held his retirement in 1926. In 1889 he presented M.D. thesis at Edinburgh on his results in abdomi pelvic, and urinary surgery, and on reading it Lawson Tait at once became his sponsor for elect to the British Gynæcological Society. In the sa year Dr. Mackay became a Fellow of the Ro College of Surgeons of Edinburgh. A prize essay lithotomy and lithotrity made him a correspond member of the Royal Academy of Medicine Surgery of Spain. Some years later he was awar the Military Cross for services rendered to the Spa Civil Guard.

In 1903 Dr. Mackay was joined in partnership Dr. Ian Macdonald, and 20 years later the town Huelva conferred on them its freedom in recogni of their united work in practice and publicati the street leading to their clinic now bears t names. When Dr. Mackay went to Spain special was unknown, and thus the field of his activi always remained wide. "As a surgeon," write medical friend, "he was endowed with the essen qualities of serenity and judgment. In his ea years he operated dexterously for cataract, gradually his work besides general surgery beca more concentrated on the abdomen and pelvis, w as a diagnostician he was rarely in error. He also a particularly safe and rapid operator in ves and urethral lesions. He was an expert accouch too, for he always seemed to judge rightly the t for instrumental assistance to the patient."

His surgical skill was well known in Spain bey Andalusia, but apart from his professional pres he won a unique position in the town where he wor for 40 years. His charm of manner, his im sympathy with the people, his generosity to the p enthroned him in their affections, and among many tributes paid at his death one ended th "Great in his sphere, our town mourns its benefac but the memory of our adopted son endures." Dr. Mackay was a man of wide interests, act speculative, and poetic, and was well read in the lit ture of Spain. He was a staunch president of Huelva Athletic Club for many years, and on the of his funeral in Ross-shire, the teams and specta before a match at Huelva bared heads to his mem He was a keen cricketer and golfer and a good s and he never lost his boyhood's love for fishing.

Dr. Mackay leaves a widow, two sons, and daughters.

THE LATE DR. A. W. WOODROFFE.—Dr. Augu Warren Woodroffe, who died recently at Ticehurst, Su had practised in the neighbourhood for more than 30 y Educated at Trinity College, Dublin, he graduated in and proceeded to the M.D. degree five years later. He for a time medical resident at the City of Dublin Hos and house surgeon at the Peterborough General Hosp He held a number of appointments in the Ticehurst dis and took a great interest in the life of the parish. He been in poor health for two years but was at work on day he died.

Medical News.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE DICAL ASSOCIATION.—From August 29th to Sept. 10th, the Queen Mary's Hospital, Stratford, there will be an day course in medicine, surgery, and the specialties. whole practice of the hospital will be open to those olling. (Fee, £3 3*s.* or £2 2*s.* for either week.) At the hlem Royal Hospital there will be two lecture-demonations bi-weekly from Sept. 6th to Oct. 1st. (Fee £1 1*s.*) m Sept. 12th to Oct. 1st the Royal Westminster thalmic Hospital will hold a course in which clinical ruction will be given daily at 2 P.M., followed by rations at 3 P.M., and special demonstrations three es a week at 5 P.M. (Fee £4 4*s.*) Also beginning on the h, the Queen's Hospital will hold a two weeks' all-day rse. (Fee £3 3*s.*) This hospital specialises in the showing cases rather than on lectures. From Sept. 19th to . 1st a course in orthopædics has been arranged by the yal National Orthopædic Hospital. Lecture-demonstrans will be given daily and the entire practice of the pital will be open to entrants. A special visit will be le to Brockley Hill Country Hospital on one of the urdays. A two weeks' course in medicine, surgery, the specialties will be held from Sept. 19th to Oct. 1st the Westminster Hospital. There will be facilities for ting associated mental institutions. This course and t of the Queen Mary's Hospital are suited to those who h to refresh their knowledge of hospital methods. Copies all syllabuses and of the general course of instruction vided at the associated hospitals, and also of the *t-Graduate Medical Journal* (annual subscription, 6*s.* post), may be had from the Secretary of the Fellowship at Vimpole-street, London, W. 1.

CREMATION OF STILLBORN CHILDREN.—It is understood to be the practice in some maternity institutions to pose of the remains of stillborn children by incineration the premises. In order to remove any misapprehension Minister of Health has drawn the attention of local ervising authorities to regulations which forbid the nation of human remains except in recognised matoriums.

BRITISH SOCIAL HYGIENE COUNCIL.—The executive the British Social Hygiene Council has just concluded annual summer school at Oxford, when a large number delegates attended, representing scholastic, religious, ial, and medical interests in various parts of the Empire. f. J. Arthur Thompson contributed a series of five ures on the Biological Aspects of Modern Sociological ivities, Dr. J. R. Rees expounded the contributions of chology to the practical problems of sex education, le Mr. Z. F. Willis discussed some of the problems of lescence. Other workers dealt with the means of surunting special difficulties in the work of eliminating ereal disease. Next year's summer school will be held Cambridge in the last week of July.

THE LATE DR. E. A. WILLIAMS.—The funeral k place at Chester on August 9th of Dr. Edward Albert lliams, who died in London on August 5th. Educated the King's School, Chester, he studied medicine at nburgh and at St. Thomas's Hospital, London, qualifying L.R.C.P. Edin. in 1906. He took the D.P.H. at Liverpool 910, and before settling for a time in practice at Prestatyn resident surgical officer at Salford Royal Hospital, and ool medical officer under the Liverpool Education committee. During the war he held a captain's commission the Royal Army Medical Corps, later serving with the Army of Occupation on the Rhine. On being demobilised took up bacteriological and radiological work in Paris.

THE LATE DR. H. D. LAWSON.—At the age of 32 Henry Dillon Lawson died on August 4th at the London spital, where he had received his medical education. was the elder son of the late Dr. H. A. W. Lawson, of atford, and joined the army in 1916, serving with a comsion in France. He was twice mentioned in despatches, shortly before the end of the war was recalled to conue his medical studies at the London Hospital. Qualig as M.R.C.S. Eng. in 1922 he was appointed house geon at Torbay General Hospital, but later returned to London Hospital, where he was at first clinical assistant the surgical out-patients' department, and later house sician. His next appointment was to Hanwell Mental spital, and after six months' residence there he worked an assistant in practice at Wadhurst, and then at Shere Surrey. A memorial service was held at Shere on the of the funeral.

A CONVALESCENT HOME TO BE CLOSED.—Queen Mary's Hospital for the East End has reluctantly decided to close its Children's Convalescent Home next spring owing to lack of financial support. The proceeds from the sale of the home will be devoted to the establishment of a Queen Mary's Hospital Convalescent Home Fund, and children will thus be sent to various convalescent homes. The King Edward VII. Hospital Fund for London has made a grant towards the new wing of the hospital, which is to contain beds for casualties. During the year 3039 in-patients were treated.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, August 22nd.—10 A.M., Dr. Dowling: Skin Dept. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Dr. Ironside: Medical Out-patient Dept.

TUESDAY.—11 A.M., Mr. Endean: Demonstration of Venereal Cases. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Hamblen Thomas: Throat, Nose and Ear Dept.

WEDNESDAY.—2 P.M., Mr. Tyrrell Gray: Operations. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 2 P.M., Mr. Gibb: Eye Dept.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 11 A.M., Mr. Simmonds: Orthopædic Dept. 3 P.M., Sir Henry Simson: Gynæcological Wards.

FRIDAY.—11 A.M., Dr. McDougal: Electrical Dept. 11 A.M., Dr. Pritchard: Modern Methods in Medicine.

SATURDAY.—10 A.M., Children's Out-patient Dept., Bacterial Therapy Dept.

Operations, Medical, Surgical, and Special Out-patient Departments, daily, 10 A.M. to 5 P.M. Saturdays, 10 A.M. to 1 P.M.

Appointments.

Surgeons under the Factory and Workshop Acts: CHERRY, D. S., M.B., Ch.B. Edin. (Kilbernie, Ayr); WOOD, W. L. R. L.R.C.P. Lond., M.R.C.S. (Ossett, W. Riding).

Manchester Royal Infirmary: ARSTALL, H., M.B., Ch.B. Vict., METCALFE, G., M.B., Ch.B. Vict., KITSON, J. H., M.B., Ch.B. Vict., M.R.C.S., L.R.C.P., HANCOCK, A., M.B., Ch.B. Vict., Resident House Physicians; BARNES, R. H., M.B. Ch.B. Vict., BAKER, A. H., M.B., Ch.B. Vict., NEWTON, R., M.B., Ch.B. Vict., BRENNAN, H. J., M.B., Ch.B. Vict., KEDDIE, J. T. C., M.B., Ch.B. Vict., KILROE, H.B., M.B., Ch.B. Vict., WADDY, F. F., M.B., Ch.B. Vict., Resident House Surgeons; TOWNLEY, H., L.D.S., M.B., Ch.B. Vict., Assistant Surgical Officer, Dental Department.

Vacancies.

For further information refer to the advertisement columns.

Aberystwyth Infirmary, &c.—H.S. £200.
Bangor, Carnarvonshire and Anglesey Infirmary.—H.S. £200.
Bath, Royal Mineral Water Hospital.—Phys.
Bedford County Hospital.—Asst. H.S. At rate of £130.
Birmingham City.—M.O.H. £1800.
Birmingham, General Hospital.—Med. Reg. and Res. M.O. £155.
Birmingham University.—Lecturer in Physiological Dept. £600.
Bootle Borough Hospital.—Sen. M.O. and two Jun. M.O.'s. At rate of £150 and £125 respectively.
Bristol General Hospital.—H.P.'s, H.S.'s, Res. Obstet. O., and Cas. H.S. Each at rate of £80.
Bristol, Royal Infirmary.—H.P.'s, H.S.'s., &c. Each at rate of £80.
Cardiff, King Edward VII. Welsh Nat. Mem. Assoc.—Area Tub. P. £696. Also Asst. Res. M.O., for North Wales. Sanat. £200.
Cheshire Joint Sanatorium, Market Drayton, Salop.—H.P. £250.

City of London Maternity Hospital, City road, E.C.—Registrar. £100. Also Asst. Res. M.O. At rate of £80.

Coventry and Warwickshire Hospital.—Two Res. H.S.'s. Each £125.

Dorchester, Dorset County Hospital.—H.S. £120.

Dumfries, Crichton Royal Mental Hospital.—Clin. Pathologist. £400.

East African Medical Service.—Asst. Bacteriologist. £600.

Exeter, Royal Devon and Exeter Hospital.—H.S. At rate of £130.

Halifax Royal Infirmary.—Res. Surg. O. £250.

His Majesty's Indian Medical Service.—Permanent Commissions.

Hove Hospital, Sackville road.—Res. M.O. £150.

Jewish Maternity Hospital, Underwood-street, E.—Hon. Asst. Obstet. S.

Leamington Spa, Warneford General Hospital.— H.P. £150.

Leicester Royal Infirmary.—H.P. and H.S. Each at rate of £125.

Lincoln City.—Asst. M.O., &c. £600.

Liverpool, Alder Hey Children's Hospital, West Derby.—Res. Asst. M.O. £200.

Liverpool, Eye and Ear Infirmary.—Hon. Asst. S.

Liverpool Royal Children's Hospital.—Two Res. H.P.'s., two Res. H.S.'s. Each at rate of £60. Res. Cas. O. and Res. M.O. Each at rate of £120.

London Lock Hospital, 91, Dean-street, W.—H.S. At rate of £200. Also Surg. Reg. £100.

London Lock Hospital, 283, Harrow-road, W.—H.S. At rate of £150.

London Temperance Hospital, Hampstead-road, N.W.—Hon. Anæsthetist.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Res. M.O. £250.

Newcastle-upon-Tyne, University of Durham, College of Medicine. Prof. of Anatomy.

Preston and County of Lancaster, Queen Victoria Royal Infirmary. H.S. £150.

Queen Charlotte's Maternity Hospital, Marylebone road, N.W.— Asst. Res. M.O. Also Dist. Res. M.O. Each at rate of £80.

Richmond, Surrey, Royal Hospital.—Asst. H.S. At rate of £100.

Rochester, Kent, St. Bartholomew's Hospital.—H.P. At rate of £175.

Royal Free Hospital, Gray's Inn-road, W.C.—H.P.

Royal Waterloo Hospital for Children and Women, Waterloo road, S.E.—Non. Res. Cas. O. £150.

Salisbury, General Infirmary.—H.S. £150.

Sheffield Royal Hospital.—Sen. Cas. O. £150.

Tiree, Parish of, Argyllshire.—M.O. £170.

West Bromwich and District General Hospital.—H.P. and Cas. H.S. £200.

West London Hospital, Hammersmith-road, W.—H.P. and two H.S.'s. Each at rate of £100.

Woolwich and District War Memorial Hospital, Shooters Hill. Hon. Obstet. S. Also two Hon. Anæsthetists. £50 guineas. Sen. H.S. £125. Jun. H.S. £100.

The Secretary of State for the Home Department announces a vacancy for a Medical Referee under the Workmen's Compensation Act for the Sheriffdom of Lanark. Applications should reach the Private Secretary, Scottish Office, Whitehall, London, S.W. 1, not later than September 3rd.

Births, Marriages, and Deaths.

BIRTHS.

HANSON.—On August 8th, at New King's-road, Hurlingham, S.W., the wife of David C. Hanson, M.C., M.B., of a daughter.

MARRIAGES.

BLACK-MILNE—BENNETT.—On August 8th, at Bournemouth, James Black-Milne, M.D., to Harriet, widow of Arthur Edward Bennett, of Tolles-road, Leicester.

BOURNE—COTONIO.—On August 3rd, at New Orleans, Geoffrey Bourne, M.D., M.R.C.P., to Margherita Cotonio, Ph.D., daughter of Mr. and Mrs. Cotonio, of New Orleans, U.S.A.

DAVIES—BROWN.—On August 9th, at the Friends' Meeting House, Luton, Vyvyan Jeremy Davies, M.R.C.S., L.R.C.P., Swansea, to Margaret Hughes Brown, M.B., B.S., of "Fairholme," Luton.

DONALD—WALKER.—On August 8th, at King's College Chapel, Aberdeen, Charles Donald, F.R.C.S., to Amy Stewart, only daughter of the late Andrew Walker and of Mrs. Walker, Ashley-gardens, Aberdeen.

DEATHS.

CARLÉ.—On August 10th, Frederick Charles Carlé, M.B. Lond., M.R.C.S., L.R.C.P., of "Wayside," West Byfleet, aged 51.

HAMILTON.—On August 9th, at Fenham Hall-drive, Newcastle-on-Tyne, John Hamilton, L.R.F.P.S.G., L.R.C.P.E.

ROUTCH.—On July 18th, at Sermione, Lake Garda, Italy, suddenly, Dr. Frederick Augustus Routch, of Mount Pleasant, Tunbridge Wells, aged 59.

SYMS.—At Selsey, on Aug. 13th, John Kendall Syms, M.R.C.S., L.R.C.P., of Shifnal, aged 51 years.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstrac

THE HISTORY OF ANGINA PECTOR

HEBERDEN OR ROUGNON?

BY PROF. HANS KOHN,
LIBRARIAN TO THE BERLIN MEDICAL SOCIETY.

FOR more than a hundred years there has been controv as to whether Heberden or Rougnon was the first to nc and describe angina pectoris.

English writers of former times made short work o Gairdner, for instance, described the claims made Rougnon as "an afterthought," and from Gibson they c elicit but "a smile." But more recent authors have ta the matter more seriously. No less a man than Sir Will Osler plainly conceded to Rougnon a priority of s months because his patient had the characteristic sympt of angina—pain and sudden death after emotion. Sir Clifford Allbutt says in his admirable work, "Dise of the Arteries including Angina Pectoris": "It is fai say that although Heberden named the disease and g by far the better description of it, yet the *first* precise cernment and description of it was in a letter by Roug to Lorry . . . ." (The italics are mine.) To reac definite conclusion on the facts seemed to me an ac historical justice. And as my solution is based on entire literature and is unreservedly in the great Bri doctor's favour, it may be that a summary of my conclus will interest English colleagues. They are published detail elsewhere.[1]

Rougnon's Case.

Close study of Rougnon's little book "Lettre à M. Lc etc.," in my opinion leaves hardly any room for d that Rougnon's patient did not suffer from angina pec at all; according to my view of the symptoms and post-mortem findings, he had emphysema of the h leading to gross dilatation of the heart and venous gestion. When moving he complained of "difficulté respirer," little by little increasing to attacks of "suffocat or "oppression" when walking a little hastily or w talking during this exertion. Six weeks before death complained during attacks of "une gêne singulière sur t la partie antérieure de la poitrine en forme de plastr Pain is nowhere mentioned in the actual history of case, though it is true that later, in analysing the sympt singly, Rougnon once employs the word; the patient in his attacks no palpitation but only "une douleur grava dans la région du cœur." Rougnon makes use of expression only occasionally, and—which must not overlooked—lays no stress on this decisive sympt By this "douleur," I feel, he understands nothing bey the "gêne singulière," meaning, I am sure, the quite fam feeling of tightness and even dull pain felt in walking patients suffering from severe dilatation of the he this is a sensation quite different from the subste oppression or excruciating and irradiating pain of an pectoris. Even Baumes, the very discoverer of Roug was obviously of my opinion when saying: "Quoiqu'i ressentît aucune douleur dans la poitrine, etc."

It is true there is very occasionally angina sine dc (Gairdner), but in a case which is supposed to introc a new disease the rule is to be expected, and not the except Moreover, although sudden death *can* be a sympton angina pectoris, such an ending is not at all uncomm after hastily running upstairs, in patients with such enorm dilatation of the heart as the autopsy revealed.

Recognition of a New Clinical Entity.

Even if Rougnon's patient had angina pectoris, bes his emphysema and cardiac dilatation, it is beyond doubt that Rougnon did not recognise it; he saw in case nothing but a grave dyspnœa. Thus he added in no anything to our knowledge of angina pectoris. There v mere descriptions of cases of angina pectoris—and e far more complete ones than his—long before Roug (Willis, Ballonius, Lancisi, Poterius, F. Hoffmann, Morga not to speak of incomplete histories from oldest times); there was an account of post-mortem findings and a v clever explanation by Morgagni, and even an abst conception of the disease, in classical form, by Bartol (1628). All these writers, however, including Bartol (Morgagni renounces classification) saw only dyspnœ their cases, just as Rougnon did, and Heberden's immo merit lies in his having picked out and entirely separ angina pectoris from the, at that time, all-domina dyspnœa. Realisation, consciousness of the new, is necessary condition of every claim to discovery and prio

[1] Zeitschrift für klinische Medicin, vol. cvi., 1927.

nce, according to Claude Bernard, does not consist of
but of conclusions drawn from them.
or the fact that Rougnon did not recognise the disease
hich Heberden gave the name angina pectoris, I found
further striking proofs. In 1788 he published his great
"Considerationes Pathologico-semeioticae de Omnibus
ani Corporis Functionibus," and in this work (fasc ii.,
) he enumerates "dolor pectoris gravativus et obscurus,
doque extensus ad axillas ubi praesertim saevit"—
most conspicious sign of angina pectoris—as the first
ptom of asthma (i.e., bronchial asthma). Again, under
patura cordis" (ib. fasc i., p. 8), he cites a definite
characteristic case of angina pectoris ("hic autem a
o tempore conquerebatur de singulari dolore sub sterno
avis de caetero sanus videretur"), ending in sudden
h after rupture of a coronary artery, without making
slightest allusion to any relation existing between this
and his own described 20 years before.
ougnon's contemporaries, and all the authors till 1808,
ously did not notice a resemblance between Rougnon's
and Heberden's disease. Only by this assumption can
xplain why from its appearance in 1768 nobody took
notice of Rougnon's work until 1808, notwithstanding
fact that it was flatteringly announced in the largely
Journal des Sçavans of July, 1768, where the reviewer
novelty not in the disease described but only in
gnon's explanation—ossification of rib cartilages as
ause of the disorder and sudden death. It is unnecessary
numerate all the other writers who passed over
gnon's work with silence, but one of them should be
ioned—namely, P. C. Marchant, Rougnon's pupil and,
t seems, friend. In Marchant's obituary notice of
gnon (1799) all Rougnon's works are named, singly or
roups, but nothing is said of the famous "lettre"
nothing of Rougnon's part in the discovery of angina
ris, a disease at that time in the very foreground of
al interest. All this shows that Gairdner is right in
g all the claims in Rougnon's favour an afterthought.

The Source of Error.

ugnon's consciousness of having discovered a new
der is sometimes inferred from the title of his work,
cited as "Lettre . . . . sur une Maladie Nouvelle."
Sir William Osler, one of the few who had the rare
in hand, cites it thus. Yet I can say with assurance
this title never existed. I was enabled to examine the
copies that Osler had; they bear the title: "Lettre
. Rougnon, Professeur en Médecine en l'Université de
çon, etc., à M. Lorry, Docteur-Régent de la Faculté
édecine de Paris, touchant les causes de la mort de
Monsieur Charles, ancien Capitaine de Cavalerie,
ée à Besançon, le 23 Février 1768. A Besançon, De
primerie de J. F. Charmet. MDCCLXVIII." There is
ng of "une maladie nouvelle." The title of three other
s I could examine is just the same, and I suppose there
o more existing copies anywhere. Baumes gave the
title; Desportes and Jurine, the next writers
eviated it to "Lettre à Lorry," and this seems to have
too devoid of substance to Pinel and Bricheteau,
ng them to add "sur une maladie nouvelle." (Pinel
Bricheteau admitted that they had not themselves
the book.) This is the source of error.

Conclusion.

sum up: in my opinion and that of Gairdner Rougnon's
nt did not have angina pectoris at all. Supposing,
ver, that it was a case of angina, Rougnon's description
by no means the first. Furthermore, although he
ibed *a case*, he failed to see anything else in it beyond
nœa. Heberden, on the contrary, did not describe
ase but conceived from 20 cases, by ingenious intuition,
bstract picture of the disease. He drew its features
ch a way as to leave little for later clinicians to add;
netrated deeply into the pathogenesis of the condition,
g an explanation (spasm, although not determining
at) subsequently more and more confirmed; he laid
the prognosis; and in the form of opium, he gave
pasmodic treatment which to-day is still regarded
e essential.
here any possibility of doubt as to whom priority is due?

EARLY BOOKS ON MEDICINE.

OM Lugano there reaches us the second part (E–L)
e catalogue of "Early Books on Medicine, Natural
ces, and Alchemy," issued by L'Art Ancien S.A.,
rs in rare books. Lugano is a tri-lingual centre in touch
the forgotten hill-top libraries of Italy and the monas-
of the Near East, from which many of the treasures
offered must at various times have been drawn. One
e most curious is the "Tacuini sex rerum non natural-
" of Elimithar, the Arabic savant, published at Strassburg
hott, the printer, in 1533. The book is notable for its
delicate woodcuts by Hans Weiditz, illustrating, among other things, the appearance of plants with a signaturist significance. Some seeds or nuts are representative of brains, testicles, the heart, and so forth, and from them were derived medicines destined to cure the diseases of those organs in man. In the same folio, bound in old vellum and offered for 375 Swiss francs, is the companion work by Bengesla entitled "Tacuini Aegritudinum et Morborum," which is especially interesting for the delicate marginal woodcuts illustrative of the daily domestic life of the sixteenth century. These are also by Weiditz, who has drawn objects of daily use—tools, furniture, utensils, and costumes—still employed by the peasantries of central Europe. Very curious are the cuts representing the routine of bagnios and houses of ill-fame. The book is one of those discussed by Choulant in his well-known work on anatomical illustration. Sir Thomas Elyot's "Castel of Helth," printed in London by Thomas Berthelet in 1541, is the very rare early edition, here valued at fr. 1000. Elyot was a layman, but his learning was profound, and his book, though decried by the medical profession of his time, remained the popular medical text-book of the age of Henry VIII. and his Tudor successors. Two works by the Abbé Charles-Michel Epée on deaf-mutes are offered at moderate prices. These are his "Institution des Sourds et Muets par la voie des signes méthodiques," Paris, 1776, and "La véritable manière d'instruire les sourds et muets," Paris (Lyon), 1784. Epée was the founder of the first institute for the deaf and dumb in Paris in 1755, and was himself the immediate continuator of the work of Rodriguez Pereira.

Rare works by Eustachius, Fallopius, Fracastorius, and Galen also figure in this catalogue. "The Passionarius Galeni" of Gariopontus, published at Lyons in 1526, is particularly worthy of notice, the price being fr. 275. This once-famous work by the earliest Salernitan teacher is a compilation of translations from Græco-Byzantine authors, and is a compendium of early eleventh century knowledge of medicine. As many as five ancient editions of the "Hortus Sanitatis" are in the catalogue, as well as the curiously illustrated works of Ketham and the medical tractates of Lactantius, the Christian father Lancisi, Martin Lister, and many other famous physicians and surgeons.

ORANGES IN CHICAGO.

EVERY week the Chicago Department of Health publishes a bulletin, and a recent issue was devoted entirely to the subject of oranges. Full of that "pep" which "orange juice gives you," the leaflet on every page contains attractive sketches illustrating such truths as "oranges for heat and energy," "oranges for vigorous leadership," "oranges for dash and daring"—Colonel Lindberg chose to drink it at the end of his Transatlantic flight—and "orange juice is not fattening" (illustrated by a picture of a fashionable girl in a fashionable pose). Although there is an accurate statement of the value of oranges in the dietary, the untrained reader may well imagine that all he needs is oranges, oranges all the way, to set him up in health for ever. Accustomed, however, to these weekly exhortations, the Chicago citizen will doubtless take them with a pinch of salt, and it must be admitted that the pamphlet is more attractive than anything produced in this country as health propaganda. Dr. Herman Bundesen's weekly bulletin is an instructive example of American enterprise in "advertising health," and this is a specialty which is likely to receive increasing attention on this side of the Atlantic. Certainly the "eat more fruit" campaigners must be grateful to Chicago's Public Health Department.

MEMORIES OF WAR WORK.

THE title of an unpretending little book[1] is taken from the list of offices in the Church given in the first Epistle to the Corinthians, chap. xii. The object of its publication is primarily to make some money towards meeting the expenses of the Pelham Memorial Hall in the parish of Holy Trinity, Norwich, and secondarily to put on record the experiences of at least one of the army of mainly unknown workers who did their best when their country was in sore straits. Mrs. Bulstrode, in the early days of the war, before the formation of the W.A.A.C., offered herself for any kind of war work, and after a period of intensive training was admitted as a hospital nurse. She worked at first in a hospital on Salisbury Plain and later at one on the South Coast, and at an internment hospital in Switzerland, ending up with a post in the massage department of one of the big London general hospitals. As a record of the impressions produced upon one who went into hospital work unversed in the experiences which she was going to meet, this little book is of interest. The smile and the tear are, as everyone knows, very near together in hospital work, and Mrs. Bulstrode shows that she managed to appreciate both at their proper values.

[1] Some . . . . Helps: Memories of War Work at Home and Abroad. By Frances J. Bulstrode. Norwich: Jarrold and Sons, Ltd. 1927. Pp. 62. 1*s.* 6*d.*

SUN-BATHING IN HYDE PARK.

A MAN of 44, who had apparently been sun-bathing in Hyde Park, was bound over by the magistrate at the Marlborough-street Police-court on August 12th, on a summons for contravening the regulations scheduled in the Parks Regulation Act of 1872. The newspaper report of the case did not specify the precise offence alleged; presumably the prosecution relied upon Regulation 14 in the schedule: "No person shall commit any act in violation of public decency, or use profane, indecent or obscene language to the annoyance of other persons using a park." Though the punctuation is misleading, the regulation probably means that the act violating public decency (as well as the profane, indecent or obscene language) must be to the annoyance of others. In certain parts of the continent the standard of public decency tolerates considerable concessions to the pursuit of health by exposure to the sun's rays. It was contended on behalf of the accused in the case under discussion that exposure of the upper part of the body for the purpose of benefiting health was not a violation of public decency. The magistrate (Mr. Mead) said he thought decent people—not prudish people—would be shocked to see a man ostentatiously sprawling about on the grass as the accused was doing. He also expressed apprehension of what might happen if myriads of people of both sexes in Hyde Park acted in a similar way. The accused, he said, could carry out his ideas of health under proper conditions without restraint.

The law of our parks is a little obscure. The Act of 1872 dealt only with certain specified Royal parks and gardens, mostly in the London district. The regulations scheduled to the Act covered such matters as dangerous driving, drilling, practising gymnastics, public speaking, drunkenness, discharging firearms, lighting bonfires, flower-picking, dog contol, fishing, bathing, and skating. Some of these regulations could be amplified by "rules of the park" made by the Commissioners of Works. Such rules were made for Hyde Park in 1910 and again in 1926. The rules deal with vehicle traffic, processions, public addresses, bathing, and boating. Bird's-nesting is forbidden; so is fishing in the Serpentine; so also is the loitering of unclean or verminous persons in the park or their lying on the ground or occupation of seats. Last year the Parks Regulation (Amendment) Act extended the statute of 1872 to all open spaces under the control of the Office of Works, and removed any restriction of the statute to merely "Royal" parks. The Commissioners of Works will in future be allowed to make regulations for all such places, and the regulations scheduled to the 1872 Act are repealed as from December next. Battersea, Victoria, and Kennington Parks were transferred to the charge of the Metropolitan Board of Works in 1887, and are thus now controlled by the London County Council. The Royal Botanic Gardens at Kew have been under the control of the Board, now the Minister, of Agriculture since 1889. The upshot of the legal developments of park regulation is a diversity of authorities and of laws. It would be safe to say that few persons who use Hyde Park are aware of the offences they may be committing, though indecent exposure is, of course, punishable by the general law of the land as well as by the local park regulations.

HEALTH CONDITIONS IN HONG-KONG.

A DELAYED report on the affairs of Hong-Kong for the year 1925, prepared by the Colonial Secretary, has been issued as a Parliamentary paper. It states at the outset that 1925 was not a happy year for the colony, owing to the great strike and other circumstances, though the manner in which it weathered the storm was a matter of self-congratulation for all sections of the community. The estimated total population at the middle of the year under review was 874,420, but this includes the New Territories, and, as the birth and death figures given below do not include those from this area (with the exception of New Koolon), the population for the purpose of calculating these rates was estimated at 786,920, of whom 16,500 were non-Chinese. The birth-rate for the year was 4·25 per 1000 among the Chinese community, and 22·6 per 1000 among the non-Chinese community, as compared with 5·47 and 18·25 for 1924. The figures for the Chinese community are obviously misleading owing to defective registration. The death-rate for the year was 19·12 per 1000 among the Chinese community, and 14·6 among the non-Chinese civil community, as compared with 21·9 and 15·68 for 1924. The following is a complete return of the deaths registered in the colony during the year: hydrophobia, 3; influenza, 45; small-pox, 41; measles, 3; typhoid fever, 91; diphtheria, 38; cerebro-spinal fever, 57; dysentery, 331; plague, nil (the last deaths from plague occurred in 1923); malarial fever, 702; cholera, 2; puerperal fever, 3; septic infections, 56; syphilis, 376; poisoning 74; injuries, 366; developmental diseases, 293; old age, 577; general tuberculosis, 253; beri-beri, 1744; cancer, 116; paralysis and convulsions, 110; heart disease, 202; pneumonia, 2878; phthisis and pulmonary tuberculosis, 1831; enter and gastro-enteritis, 1080; cirrhosis of liver, 35; peritoni 28; nephritis, 433; other causes, 2931; unknown, 292

Civilian Hospitals.

The Civil Hospital contains 198 beds in 23 wards. 5 in-patients and 30,889 out-patients were treated du 1925, as against 6406 and 31,347 respectively in 1924. maternity hospital contains nine beds for Europeans, 1 three extra beds, and eight for Asiatics; 668 confinem occurred during the year, as against 789 in 1924. Victoria Hospital at the Peak contains 41 beds, and du 1925 320 patients were under treatment there. At Kenn Town Hospital, which contains 26 beds, 12 cases were trea in 1925, being infectious. The Kimatu Asylum is under direction of the superintendent of the Civil Hospi European and Chinese patients are separated, the Europ portion containing 14 beds in separate wards, and the Chi portion 16 beds. 308 patients of all races were treated du 1925, and there were nine deaths.

The Tung Wa Hospital, opened in 1872, is ma supported by the voluntary subscriptions of Chin only Chinese are treated in this institution, which perfo various other services not appertaining to a hospital, s as the free burial of the poor, the repatriation of destitu the maintenance of free vernacular schools, and organisation of charitable relief in emergencies; Chines well as European methods of treatment are employe accordance with the wishes expressed by the patient their friends; over half the number are now treated Western methods. There are 450 beds in the building, 9133 patients were accommodated during 1925. institution is under the supervision of a visiting physic who is a member of the medical department, whilst Chinese house surgeons, trained in Western medicine, members of the hospital staff. The Tung Wa also main a branch hospital for small-pox cases (Chinese only Kennedy Town. It contains 70 beds, and during 23 cases were treated.

The Alice Memorial and Affiliated Hospitals dealt 1402 in-patients in 1925 and 81,715 out-patients. Kwong Wa Hospital for Chinese in the Kowloon Penin was opened in 1911. It occupies a site having an are three acres, and the existing buildings contain 215 b 6862 patients were accommodated during 1925.

Dispensaries.

Amongst other institutions in the colony supported voluntary contributions is the Pó Leung Kuk, a Chi society for the suppression of kidnapping and traffi human beings, and the Eyre Diocesan Refuge, founded rescue work among the Chinese. The Chinese pu dispensaries are institutions maintained in order to pro the Chinese with the services of doctors whose certific will be accepted by the registrar of deaths, and with services of interpreters who can assist the inmates of ho where a case of infectious disease has occurred. Coolies engaged, and ambulances and dead vans provided in o to remove cases of infectious disease to the infectious dise hospital, and dead bodies to the mortuary. The dispens receive sick infants, and send them to one or other of convents, and arrange for the burial of dead infants. advice and medicine are given, and patients are atte at their houses.

THE BALANCE-SHEET OF SUNSHINE CLINIC

EXPERIMENTAL light centres were established at Ashton-under-Lyne and Lancaster County dispensarie 1925 for the treatment of certain forms of non-pulmo tuberculosis. A report by Dr. G. Lissant Cox to the Co Council states that the treatment has given good re in two groups of cases refractory to other forms of t ment—namely (1) lupus, and (2) adenitis with ab formation and skin involvement. Many of the lupus had been under treatment for 20–40 years prior to mencing light treatment. The efficiency of light treatm was not so strikingly proved in other types of sur tuberculosis which respond fairly satisfactorily to forms of treatment.

No permanent ill-effect, either local or general, had caused by artificial light treatment and no patient tre by light had relapsed. Dr. Cox informed the health comm that the total number of cases of non-pulmonary t culosis in the county of Lancaster on Dec. 31st, 1926, 3708, of whom 1219 were likely to benefit by light treatm After a careful review the committee came to the clusion that the provision of light apparatus shoul considered for 15 of the existing county dispensaries as to make it possible to treat patients reasonably ne their homes. Cost and saving might be set out t Estimated cost (including depreciation at one-fifth of ca cost of £1950) of running 15 centres for one year, £ Estimated saving (based on experience at Ashton) in of residential and other special treatment by attendan patients at centres, £6000.

THE LANCET.

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The Council consists of 38 members, of whom all t 11 are official representatives of some corporate dy. Five members are chosen by the Crown on the vice of the Privy Council, and six others are elected the members of the medical profession as Direct presentatives. The Crown members need not be dical men and one layman now sits on the Council. ree members are appointed for dental business by Privy Council under the Dentists Act, 1921, der which the powers and duties of the General dical Council with regard to the keeping of the ntists Register and the administration of the ntists Acts were largely transferred to the Dental ard of the United Kingdom.

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Before registration every candidate should produce dence that he has attained the age of 17 years. e minimum standard of General Education uired is that of University matriculation or rance examination in the Faculties of Arts or Pure ence. In other Faculties the examination must be the standard prescribed in Regulation 2 below. fore registration as a student every applicant uld be required to have passed a recognised mination in general education, and, in addition reto, an examination, theoretical and practical, elementary physics and elementary chemistry ducted or recognised by a licensing body.

An approved course of instruction in elementary logy at a secondary school or other teaching titution recognised by a licensing body may admit udent to the professional examination in elementary logy upon registration as a medical student.

The candidate commencing medical study should ply to the registrar of the division of Great Britain l Ireland in which he is residing, according to a scribed form, copies of which may be had on plication to the several licensing bodies, medical ools, and hospitals, or at the offices of the Council; l should produce proof that he or she has fulfilled first three conditions.

he Maintenance of the Register of Medical Students.

. The Education Committee prepares and issues m time to time a list of examining bodies whose minations in general education fulfil the conditions and are specially recognised by, the Council.

2. The Council has recognised the undernoted university examinations which are conducted in Great Britain and admit to the Faculties of Arts or Pure Science, or to other Faculties, subject to the conditions specified below:—

Birmingham University, Matriculation Examination. Bristol University, Matriculation Examination. Cambridge University, Previous Examination. Durham University, Matriculation Examination. Leeds University, Matriculation Examination. Liverpool University, Matriculation Examination. London University, Matriculation Examination. Manchester, Victoria University, Matriculation Examination. Oxford University, Responsions. Scotland, Universities of, Entrance or Preliminary Examination. Sheffield University, Matriculation Examination. Wales, University of, Matriculation Examination.

The condition prescribed by the Council in Faculties other than Arts or Pure Science is that:—

The certificate shall bear evidence that the candidate has passed in the following subjects, viz.: (*a*) English. (*b*) Mathematics, Elementary. (*c*) A language other than English. (*d*) A fourth subject, as defined in the regulations of the particular Examination, to be chosen from the subjoined list, viz.: History, Geography, Physical Science, Natural Science; Latin, Greek, Hebrew, French, German, or other language accepted by the University for the purpose of matriculation or entrance.

3. Subject to the condition prescribed above (Section 2), the Council will recognise those of the examinations conducted by recognised authorities in Great Britain which are accepted by any one or more of the above-named Universities as equivalent (under prescribed conditions as to "credits" or "grades"), for purposes of Entrance or Matriculation, to an Examination named in the preceding list (Section 2). Such Examinations are:—

Bristol University: High School Certificate Examination; Schools Certificate Examination. Cambridge Local Examinations Syndicate: Higher School Certificate Examination; School Certificate Examination. Central Welsh Examination Board: Higher Certificate Examination; School Certificate Examination. Durham University: Higher Certificate Examination; School Certificate Examination. London University: Higher School Certificate Examination; General School Examination. Northern Universities Joint Matriculation Board: Higher Certificate Examination; School Certificate Examination. Oxford and Cambridge Schools Examination Board: Higher Certificate Examination; School Certificate Examination. Oxford Delegacy for Local Examinations: Higher School Certificate Examination; School Certificate Examination. Scottish Education Department: Leaving Certificate Examination.

4. The Council will continue to recognise certain Examinations conducted by Educational Bodies, other than those (mentioned in Section 3) whose Examinations are accepted by any one or more of the Universities of Great Britain. Recognition will not be extended under this Section to any Examination unless the Council is satisfied (*a*) that in scope and standard it is equivalent to a recognised Matriculation or Entrance Examination of a University of Great Britain, (*b*) that it fulfils the condition prescribed by the Council (Section 2), and (*c*) that the Examination has been completed at not more than two sittings. Such Examinations are:—

The College of Preceptors (England): Senior Certificate. The Educational Institute of Scotland: Preliminary Medical Certificate.

5. Subject to the prescribed condition (Section 2), the Council will recognise the Entrance Examination to the School of Physic of the University of Dublin, and the Matriculation or Entrance Examinations of the National University of Ireland, the Queen's University of Belfast, the Irish Royal Colleges of Physicians and Surgeons; and also the Leaving Certificate of the Intermediate Education Board of the Irish Free State, the Senior Grade Leaving Certificate of the Ministry of Education of Northern Ireland, and all examinations accepted by any one or more of the Universities of Great Britain or Ireland

as equivalent, for purposes of entrance or matriculation, to the above-named University Examinations.

6. Subject to the prescribed condition (Section 2), the Council will recognise all Examinations of Colonial or Foreign Universities which are accepted by any one or more of the Universities of Great Britain as equivalent, for purposes of entrance or matriculation, to an examination named in the list of examinations recognised by the Council (Section 2).

7. The Council will recognise the Final Examinations for Degrees in Arts or Science of any University of Great Britain or Ireland or of the British Dominions.

8. The registration of medical students shall be placed under the charge of the Branch Registrars.

9. Each of the Branch Registrars shall keep a register of medical students.

10. The Branch Registrar shall enter the student's name and particulars in the Students Register, and give him a certificate of such registration.

11. Each of the Branch Registrars shall supply to the several licensing bodies, medical schools, and hospitals, in that part of Great Britain or Ireland of which he is Registrar, blank forms of application for the registration of medical students.

12. A copy of the Medical Students Register prepared by each of the Branch Registrars shall be transmitted, on or before Dec. 31st in each year, to the Registrar of the General Council, who will distribute the list to the licensing bodies, medical schools, and hospitals.

All applications for special exceptions to the foregoing regulations as to registration shall be addressed to the Registrar of the General Council, and shall be decided by authority of the Education Committee, who shall report thereon to the Council.

The Medical Schools and Colleges.

The Universities, including their Colleges and Medical Schools, and Schools of Medicine at which Medical Study may be commenced in the United Kingdom are set out seriatim in the following pages.

MEDICAL REGISTRATION IN IRELAND.

Within the past few months the problem of medical registration in the Irish Free State, which had given rise to some anxiety during the past two years, has been satisfactorily settled. By agreement between the Governments of Great Britain, of the Irish Free State, and of Northern Ireland—since confirmed by legislature at Westminster and Dublin—the powers and duties of the General Council of Medical Registration and Education are to continue as heretofore in respect of qualifying bodies in the Irish Free State, and of medical practitioners qualified in the Irish Free State. Side by side with this a Medical Council is to be set up in the Irish Free State with the duty of establishing and controlling a Register for the Irish Free State. All practitioners whose names are on the General Register at the moment, whose address therein is given as being in the Irish Free State, will in the first instance be entered on the Irish Free State Register; practitioners whose names are on the General Register, but who are resident outside the Irish Free State, will also be registered if they apply within one month before the establishment of the Register. After the establishment of the Register practitioners whose names are on the General Register, and persons who pass a qualifying examination in the Irish Free State, will be registered on payment of the prescribed fee. The Irish Free State Medical Council will have, over those whose names are on the Irish Free State Register, the same disciplinary powers as are possessed by the General Council over those whose names are on the General Register. To possess the privileges of a qualified practitioner in the Irish Free State it will be necessary to be registered in the Irish Free State Register.

The net result of the change in the law as regards the practitioner qualifying in the Irish Free State in the future is that: (1) If he intends to practise only in the Irish Free State he need only register in the Irish Free State Register; (2) if he intends to practise in Great Britain he will register in the General Register; and (3) if he is in doubt where he will practise he will register in both Registers. He will, as he registers in one Register, or in both Registers, put himself under the disciplinary control of the Irish Council or of both Councils. No practical inconvenience is caused, and practitioners qualified in the Irish Free State in future will not find themselves deprived of any of the privileges or rights enjoyed by their predecessors.

THE DENTAL BOARD OF THE UNITED KINGDOM

Anyone who is on the Medical Register is entitled to practise as a dentist, although he cannot register as such without degree or licence in dentistry; but it is a distinct advantage to take a special dental qualification, otherwise few dental appointments at general or special hospitals or dispensaries are available.

Under the Dentists Act, 1921, the powers and duties of the General Medical Council under the Dentists Act, 1878, and under the Medical Act, 1886, which related to the keeping of the Dentists Register and the administration of the Dentists Acts were largely transferred to the then newly-constituted Dental Board of the United Kingdom. The registration of dental students at the commencement of their dental studies, and the right of erasure of a name from the Dentists Register, remain with the Council, but the duty of inquiring into disciplinary cases rests with the Board, upon whose recommendations the Council acts.

The Dental Board consists of a chairman and 25 members. The chairman is appointed by the Privy Council. Other members of the Board are appointed by the Minister of Health, the Scottish Board of Health, the Governor-General of Northern Ireland, the General Medical Council (3), Direct Vote of the qualified dentists practising in England and Wales, Scotland, and Ireland (3), Direct Representatives of registered dentists not being qualified dentists (2).

Registration of Dental Students.

The General Medical Council's Regulations in regard to the registration of dental students which came into force on Jan. 1st, 1923, provide that the registration of dental students shall be carried on at the General Medical Council Office in London, in the same manner as that of medical students, and be subject to the same regulations as regards age and preliminary examinations; but in the case of dental students professional study may commence either at a recognised dental hospital or school, or by pupilage with a registered dental practitioner.

Candidates for a diploma in dental surgery should produce certificates of having been engaged for at least four years in professional studies, and of having received during 24 calendar months instruction in dental mechanics. It is recommended that instruction in dental mechanics be taken at a recognised dental hospital and school. If any part of such instruction be taken by the candidate as a pupil with a registered dental practitioner, the time required to be devoted to it shall be at least twice the time required for the corresponding instruction taken at a dental school. Two years' bona-fide apprenticeship with a registered dental practitioner, after registration as a dental student, may be counted as one of the four years of professional study. The necessary instruction in dental mechanics, or any part of it, may be taken by the dental student either before or after his registration as a student. When a student can show evidence of regular pupilage in dental mechanics to a registered dental practitioner, prior to the passing of the prescribed preliminary and scientific examinations, he may be allowed to antedate his registration for a period not exceeding one year prior to the passing of these examinations.

THE OFFICES.

The address of the Registrar, to whom further communications should be addressed, is as follows: The Registrar of the General Medical Council, 44, Hallam-street, Portland-place, London, W. The offices of the Dental Board are adjoining.

THE MEDICAL EXAMINING BODIES AND SCHOOLS OF THE UNITED KINGDOM.

GUIDE TO THE FACILITIES FOR OBTAINING THE VARIOUS MEDICAL DEGREES AND OTHER QUALIFICATIONS FOR THE BRITISH MEDICAL REGISTER.

I.—ENGLAND AND WALES.

THE UNIVERSITIES.

UNIVERSITY OF OXFORD.

THERE are two degrees in Medicine, *B.M.* and *D.M.*, in Surgery, *B.Ch.* and *M.Ch.*, and diplomas in *Public Health and Ophthalmology.*

Only Graduates in Arts of the University are eligible for the Medical and Surgical degrees. The most convenient course for the B.A. degree for intending graduates in Medicine is to take Responsions, the Preliminary Science Examinations mentioned below, and the Final Honour School of Physiology. To obtain the degrees of B.M. and B.Ch. the following examinations must be passed: 1. Preliminary Subjects: Physics and Chemistry, Zoology, and Botany. 2. Professional. (*a*) First Examination: Subjects—Organic Chemistry, unless the candidate has satisfied the examiners in Part I. Chemistry in the Honour School of Natural Science; Human Physiology, unless he has obtained a First or Second Class in Animal Physiology in the Honour School of Natural Science; Human Anatomy. (*b*) Second Examination: Subjects—Medicine, Surgery, Midwifery, Pathology, Forensic Medicine with Hygiene, Materia Medica and Pharmacology. The First and Second Professional examinations are held in June and December. The first B.M. examination may be passed at any time after the Preliminary Scientific examinations. Anatomy and Physiology must be passed at the same time—Organic Chemistry may be taken separately.

At any time after passing *First B.M. Examination*, a candidate can, on producing certificates, present himself for examination in the subjects of Pathology, Forensic Medicine with Hygiene, Materia Medica and Pharmacology; but cannot, unless he is already a registered medical practitioner, enter for examination in Medicine, Surgery and Midwifery until the eighteenth term from his matriculation, nor until a period of at least thirty-three months has elapsed from the date of passing the First B.M. Examination. He must pass in Medicine, Surgery and Midwifery at one and the same time.

Before admission to the Examinations in Pathology and Bacteriology, and Materia Medica and Pharmacology, of the second B.M. Examination, the student must produce certificates of having attended courses of instruction including practical work in Pathology, Bacteriology, Post-Mortem Clerking, Pharmacology, and Pharmacy, either in Oxford or in a recognised Medical School. Before admission to the remainder of the second B.M. Examination, he must produce a number of other certificates, including certificates of having acted as Clinical Clerk and Dresser, each for six months in the Wards, of instruction in Midwifery and of attendance on Labours, of instruction in Infectious Diseases and in Ophthalmology, of proficiency in Vaccination and in the administration of Anæsthetics, and of three academic years of hospital practice.

The degree of B.Ch. is granted with that of B.M. to all passing the above examinations. The degree of D.M. is granted to Bachelors of Medicine of the University who have entered upon their thirtieth term from Matriculation, and have submitted a dissertation which is approved by the examiners for the B.M. degree whose subjects are dealt with therein and by two Professors in the Faculty of Medicine. The degree of M.Ch. is granted after examination to Bachelors of Surgery in the University who have entered upon their twenty-first term, and who are Members of the Surgical Staff of a recognised hospital, or have acted as Dresser or House Surgeon in such a hospital for a period of six months. The examination, which includes Surgery, Surgical Anatomy and Pathology and Surgical Operations, is held annually in June, after the Second B.M. examination.

The examinations for the Diploma in Public Health in two parts are held in Trinity and Michaelmas terms; that for the Diploma in Ophthalmology is held annually in July.

Travelling Fellowship, Scholarships, and Prizes.—A Radcliffe Travelling Fellowship is awarded annually after an examination held in February. It is tenable for two years and of the annual value of £300. The examination is in Physiology, Pathology, and Hygiene, and is partly "practical." Candidates must be graduates in Medicine of the University. The holder must travel abroad for the purpose of medical study. Application should be made to the Radcliffe Examiners, Department of Medicine, University Museum. A Christopher Welch Scholarship of £100, tenable for four years, is awarded annually after examination. Candidates must be men undergraduate members of the University, who have not exceeded the twelfth term from their matriculation, or been admitted to any degree in the University. They may offer any one of the subjects, Animal Physiology, Botany, Zoology. A George Herbert Hunt Travelling Scholarship of the value of about £100 is awarded every second year to enable a Bachelor of Medicine to undertake three months' study abroad. A Rolleston Memorial Prize is awarded once in two years to members of the Universities of Oxford and Cambridge of not more than ten years' standing for an original research in some Biological subject, including Physiology or Pathology. The Radcliffe Prize, founded by University College (1907). is of the value of £50 and is awarded biennially (alternating with the Rolleston Memorial Prize) for research in some branch of medical science. The Theodore Williams Scholarships, each of the value of £50 a year for two years, are awarded annually in the subjects of Anatomy, Physiology, and Pathology. A Radcliffe Scholarship in Pharmacology, of the value of £50 for one year, is awarded annually by the Master and Fellows of University College. A King's College Hospital Burney Yeo Scholarship of £80 is awarded each year on the nomination of the Regius Professor of Medicine. The Scholarships and Exhibitions in Science which are offered by most Colleges are open to those who intend to pursue Medicine. The value of these scholarships is usually £80 a year for four years; the exhibitions vary in value from £30 to £90 per annum. The number of scholarships and exhibitions in Science offered annually is about forty. There are also Medical Scholarships of the value of £100 a year at University College and at Pembroke College. The Welsh Memorial Prize for Anatomical drawing is awarded annually, and is of the value of about £10.

Post-graduate courses are held at the beginning of October. In the course of the past year large new Departments of Biochemistry, Pathology, and Pharmacology have been brought into use; the Department of Physiology has been considerably enlarged by the removal of Biochemistry to a separate building; and the laboratories of Anthropology attached to the Department of Human Anatomy have been greatly extended.

More detailed information may be obtained from the University Calendar; from the Examination Statutes, 1923; from the Regius Professor of Medicine; from the Professors in the departments of medical science; and from the Dean of the Medical School, Oxford.

UNIVERSITY OF OXFORD: RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—225 beds. Courses of instruction are given in connexion with the Oxford University Medical School. These include (1) a course

in Practical Medicine by the Regius Professor of Medicine; (2) clinical lectures by the Litchfield Lecturers in Medicine and Surgery; and (3) tutorial instruction and demonstrations in special Regional Anatomy (medical and surgical), methods of Medical and Surgical Diagnosis, and Surgical Manipulation. (4) Pathological demonstrations and instruction in post-mortem work are given by the Assistant Pathologist. Opportunities are offered to students who wish to act as surgical dressers and clerks. A post-graduate course is held in the hospital in the autumn of each year.

UNIVERSITY OF CAMBRIDGE.

The student must enter a College, or as a non-collegiate student, and keep nine terms (three years) by residence. He must pass the Previous Examination of the University before he comes into residence or he may obtain exemption through the Oxford and Cambridge Schools Examination Board, the Oxford or Cambridge Senior Local Examinations, the London Matriculation Examination, the Scotch Education Department, Responsions at Oxford, and the Joint Matriculation Board of the Universities of Manchester, Liverpool, Leeds, and Sheffield, the Matriculation Examination of the University of Birmingham, and certain other certificates, or by being a graduate of certain other Universities in the United Kingdom. He may then devote himself to medical study in the University, &c. Or he may, as nearly all students now do, proceed to take a degree in Arts by passing the Examinations for the ordinary B.A. degree, or an Honours degree by passing a Tripos Examination. The Natural Sciences Tripos is taken most frequently by medical students, as some of the subjects are practically the same as those for the First and Second M.B. examinations.

For the degree of *Bachelor of Medicine* (*M.B.*) five years of medical study are required either in Cambridge or at one of the recognised Schools of Medicine. The first three or four years are usually spent in Cambridge till the student has passed the examination for Part I. of Natural Sciences Tripos and the First and Second examinations for M.B. Hospital practice may be attended in Cambridge, but until the student has completed the course for the third part of the second M.B. it cannot count towards the two and a half years of hospital practice required before admission to the first part of the Third M.B. The laboratories for Botany, Chemistry, Physics, Biology, Zoology, Human Anatomy, Physiology, Biochemistry, Pathology, Bacteriology, Pharmacology, Psychology, and Public Health are well equipped. Addenbrooke's Hospital, the Infectious Diseases Hospital, the Cambridge Research Hospital, and the Field Laboratories are utilised for study and research.

There are three examinations for M.B. The *first* includes (1) General and Inorganic Chemistry, (2) Mechanics, (3) Physics, and (4) Elementary Biology. These parts may be taken together or separately. The *second* is divided into three parts—viz. (1) Organic Chemistry, (2) Human Anatomy and Physiology, and (3) Pharmacology and General Pathology. The *third* is divided into two parts: (1) Principles and Practice of Surgery (including Special Pathology and Midwifery and Diseases Peculiar to Women); and (2) Principles and Practice of Physic (including Diseases of Children, Mental Diseases, Medical Jurisprudence), Pathology (including Hygiene and Preventive Medicine), and Pharmacology (including Therapeutics and Toxicology). The examinations are partly in writing, partly oral, and partly practical, in the hospital, in the dissecting room, and in the laboratories. An Act has then to be kept by the candidate reading an original dissertation composed by himself and being examined orally on some subject approved by the Regius Professor of Physic. Candidates who have passed both parts of the third M.B. examination are admitted to the registrable degree of *Bachelor of Surgery* (*B.Chir.*) without separate examination and without keeping an Act.

The degree of *Doctor of Medicine* (*M.D.*) may taken three years after that of M.B. or four years af that of M.A. The candidate is required to prod certificates of having been engaged in Medical Stu for five years, and if an M.A. to pass the same exa nations as are required for the degree of M.B. An has to be kept, consisting of an original Thesis w *viva voce* examination; and a short extempore es has to be written on a topic taken from the gene subject of his thesis, whether it be Physiolo Pathology, Pharmacology, the Practice of Medici State Medicine, or the History of Medicine.

For the degree of *Master of Surgery* (*M.Chir.*) candidate must have passed all the examinations B.Chir., or, if he is an M.A., have obtained some ot registrable qualification in surgery. He is required pass an examination in Principles and Practice Surgery, Surgical Anatomy and Surgical Operatic and Pathology, and to write an extempore essay a Surgical Subject. Before he can be admitted the examination two years at least must have elap from the time when he completed all required for degree of B.Chir.

Diplomas are granted in Public Health, Hygiene, in Tropical Medicine and Hygiene, and Medical Radiology and Electrology. Candidates m hold a recognised medical qualification. (See p. 4

Women Students.—Increased facilities have b offered to students of Girton and Newnham Colle and they are admitted to the M.B. Examinations.

Scholarships and Prizes.—Medical studies endowed by the numerous Natural Science schol ships at the various colleges, information about wh can be obtained from the respective Tutors. Th are Natural Science scholarships at most of colleges and prizes in the ancillary medical subje Some of these are entrance scholarships; some m be gained by students already in residence, and wh suitable candidates are not forthcoming among st students the emoluments may be allotted to memb of other colleges. A valuable scholarship institu on behalf of Medicine is the Tancred Studentship Physic, tenable at Gonville and Caius College. T successful candidate must enter at the college wit a month or remove there if he be a member of a other college. Students are required to take degree of M.B. as soon as they are of suffici standing but may hold the Studentship for a furt three years. Thus a student elected previous admission to college can draw the emolument, annual value of which is about £90, for eight ye Full particulars can be obtained from Mr. E. Gurdon, 28, Lincoln's Inn-fields, London. Amo other scholarships and prizes may be mentioned Balfour Studentship, for research in Biology, of value of £200 a year for three years, open to the wh University; the Frank Smart Scholarship and Pri for Botany and Zoology, and the Shuttlewo Studentship for Zoology or Physiology tenable a at Gonville and Caius College. The one Univers Prize in Medicine, the Raymond Horton Smith Pr (value £19), is awarded to that candidate for the deg of M.D. who presents the best thesis for the deg during the academical year, provided that he has ta honours in a tripos examination.

An abstract of the Regulations and Schedules of range of the examinations in Chemistry, Physi Biology, Pharmacology, and General Pathology m be obtained upon sending a stamped directed envel to the Registrar, The Registry, Cambridge.

ADDENBROOKE'S HOSPITAL.—190 beds. Clini Lectures in Medicine and Surgery, in connexion w Cambridge University Medical School, are given this hospital twice a week during the academi year; and practical instruction in Medicine a Surgery is given in the wards and out-patien rooms by the physicians and surgeons daily duri the term time and vacations. The fee for pupils is 3 guineas a term, 9 guineas a year, 12 guin perpetual. Further information may be obtained fr Dr. Aldren Wright.

UNIVERSITY OF LONDON.

The University of London was established by Royal Charter in 1836 as an examining and degree-conferring body with affiliated colleges but no direct teaching functions. In 1900 it was reconstituted under the Act of Parliament, 1898, and became a teaching as well as an examining body. The External side of the work of the University needed no great amendments; the developments have been upon the Internal side. Many schools already existing became constituent colleges, including all the metropolitan medical schools.

Internal and External Students.—All the examinations of this University are open to men and women alike. Matriculated students of the University may be either internal or external. Internal students of the University are students who have matriculated in the University and who are pursuing a course of study approved by the University, either (*a*) under the direct control of the University or a committee appointed thereby; or (*b*) under one or more of the appointed or recognised teachers of the University. Centres for preliminary and intermediate medical studies have been established by the University at University and King's Colleges. Internal students must pursue their studies at one of the above centres, or at one of the medical schools connected with the University. These are St. Bartholomew's Hospital, Charing Cross Hospital, St. George's Hospital, Guy's Hospital, King's College Hospital, the London Hospital, St. Mary's Hospital, the Middlesex Hospital, St. Thomas's Hospital, University College Hospital, Westminster Hospital, and the London (Royal Free Hospital) School of Medicine for Women. Various schools and hospitals are also recognised as schools of the University in special departments, and students may pursue their studies at other approved universities and medical schools, presenting themselves for examination at the University.

Faculty of Medicine.—The Faculty of Medicine grants the joint degrees of M.B., B.S. (*Bachelor of Medicine and Surgery*), the higher separate degrees of M.D. (*Doctor of Medicine*) and M.S. (*Master of Surgery*), and the degree of B.D.S. (*Bachelor of Dental Surgery*); the two higher degrees being open only to candidates holding the M.B., B.S degrees of the University. The curriculum for the M.B., B.S. degrees is five and a half years from the time of matriculation, with certain exceptions which must be looked for in the official regulations of the University.

A. *Internal Students.*—For the Bachelor's degrees in Medicine and Surgery a student must normally, after registration as an internal student, have: (1) Attended prescribed courses of study for five and a half years in one or more schools of the University. (2) Passed the following examinations, under the conditions mentioned below: (*a*) The First Examination for Medical Degrees in Inorganic Chemistry, Physics, including Mechanics, and General Biology; (*b*) the Second Examination for Medical Degrees: Part I., Organic Chemistry; Part II., Anatomy, Physiology, and Pharmacology; (*c*) the Third Examination for Medical Degrees, or M.B., B.S. Examination in Medicine, Surgery, Obstetrics and Gynæcology, Pathology, Forensic Medicine, and Hygiene.

B. *External Students.*—For the Bachelor's degrees in Medicine and Surgery an external student must (1) have passed the Matriculation examination or have been exempted therefrom under Statute 116 not less than five and a half years previously; (2) have passed subsequent examinations similar to those required of an internal student; and (3) have been engaged in professional studies during the five and a half years subsequently to Matriculation and four and a half years subsequently to passing the First Examination for Medical Degrees at one or more of the medical institutions or schools recognised by this University for the purpose, one year at least of the four and a half years to have been spent in one or more recognised institutions or schools in the United Kingdom.

The First Examination for Medical Degrees (*Inorganic Chemistry, Physics, including Mechanics, and General Biology*) will take place twice in each year, commencing on the Monday following Dec. 7th and on the first Monday in July. It must be passed not less than nine months after matriculation.

The Second Examination for Medical Degrees (*Part I.*) *: Organic Chemistry.*—This examination will take place twice in each year, commencing on the Thursday following the second Monday in March and on the Thursday following the first Monday in July. No candidate will be admitted to this examination until he has completed the First Examination.

The Second Examination for Medical Degrees (*Part II.*) takes place twice in every year, commencing on the Tuesday following the third Monday in March and on the Tuesday following the first Monday in July. No candidate shall be admitted to the examination unless he has passed the First Examination for Medical Degrees at least 18 months previously, and has passed Part I. of the Second Examination for Medical Degrees.

The Third or M.B., B.S. Examination.—The M.B., B.S. examination takes place twice in each year, commencing on the second Monday in November and on the first Monday in May. No candidate will be admitted to this examination unless he has completed the Second Examination for Medical Degrees, together with a course of study summarised below, nor within three years from the date of passing the Second Examination, Part II., in Anatomy and Physiology. The course of study comprises introductory course in (1) Clinical Medicine; (2) Clinical Surgery; and (3) Clinical Pathology; (4) Experience as Clinical Clerk; (5) Clinical Medicine; (6) (*a*) Fevers, (*b*) Children's Diseases, (*c*) Venereal Diseases, (*d*) Mental Diseases (at a recognised Asylum), (*e*) Dermatology, (*f*) Vaccination, (*g*) Materia Medica and Pharmacy; (7) Experience as a Surgical Dresser; (8) Clinical Surgery; (9) Ophthalmology; (10) Oto-Rhino-Laryngology; (11) (*a*) Operative Surgery, (*b*) Applied Anatomy, (*c*) Administration of Anæsthetics, (*d*) Dental Surgery, (*e*) Orthopædic Surgery; (*f*) Mechano-therapeutics; (12) Obstetrics and Gynæcology; (13) Lying-in Hospital; (14) The conduct of at least 20 Labours; (15) Antenatal Clinic; (16) Experience as a Clinical Clerk in Gynæcological Work; (17) General Pathology, Morbid Anatomy, Bacteriology, and Chemical Pathology; (18) Work in the Post-Mortem Room; (19) Clinical Laboratory; (20) Forensic Medicine; (21) Hygiene. He must have attended the Medical and Surgical Practice of a recognised hospital for two years, and have held the posts of clinical clerk and surgical dresser for periods of six months each. Candidates will be examined in Medicine, Pathology, Forensic Medicine and Hygiene, Surgery, Obstetrics and Gynæcology. The subjects may be divided into two groups—namely: (1) Medicine, Pathology, Forensic Medicine, and Hygiene; and (2) Surgery, Obstetrics, and Gynæcology. These groups may be taken either separately or together. Bachelors of Medicine who graduated before May, 1904, may obtain the B.S. by passing the Surgical part of the M.B., B.S.

Doctor of Medicine.—The examination for this degree takes place twice in each year, commencing on the second Monday in December and on the first Monday in July. Candidates may present themselves for examination in one of the following branches—namely: (1) Medicine; (2) Pathology; (3) Psychological Medicine; (4) Midwifery and Diseases of Women; (5) State Medicine; and (6) Tropical Medicine. Any candidate for the degree of M.D. (except in branch 5) may transmit to the Registrar a thesis for approval and may be exempted from a part or from the whole of the written examination.

Master of Surgery.—The examination for the degree of Master of Surgery takes place twice in each year: (1) Surgery; (2) Dental Surgery; (3) Ophthalmo-

logy; (4) Laryngology, Otology, and Rhinology. A thesis may be submitted as for M.D.

Bachelor of Pharmacy.—The Senate has approved the institution of the Degree of Bachelor of Pharmacy, the course extending over three years.

Full details of the prescribed curricula can be obtained free on application to the Academic Registrar, University of London, South Kensington, S.W. 7.

MEDICAL SCHOOLS OF THE UNIVERSITY OF LONDON.[1]

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.—The hospital contains 757 beds, of which 687 are for patients in the hospital at Smithfield and 70 at the Alexandra Hospital, Swanley. Special departments have been organised for Diseases of Women and Children, the Eye, Ear, Larynx, and Skin, as well as for Orthopædic and Dental Surgery, and for Electrotherapeutics and X Ray work. Whole-time Clinical Units under Professors of Medicine and Surgery have been established.

Ten house physicians and ten house surgeons are appointed annually, are provided with rooms and board, and receive £80 a year as salary. A resident midwifery assistant, an ophthalmic house surgeon, and a house surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and board and receive a salary of £80 a year. Three resident administrators of anæsthetics are appointed, the senior for one year at a salary of £150, and two juniors for six months with a salary at the rate of £80 per annum, with board and rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year. The clinical clerks, the obstetric clerks, the clerks to the medical out-patients, the dressers to the surgical in-patients and to the out-patients, and the dressers in the special departments are chosen from the students. A residential College is attached to the hospital.

There are quarters for the resident staff, casualty, medical, surgical, and special out-patient departments, casualty wards, dispensary, and clinical lecture theatre. There is a chemical laboratory attached to the College as well as a laboratory devoted to instruction in Public Health. A block is devoted to Pathology, and contains the post-mortem room as well as extensive laboratories for bacteriology, clinical pathology, and pathological chemistry. *The Medical College Buildings* include three large lecture theatres, a large dissecting room, laboratories for chemistry, biology, morbid anatomy and histology, and public health, as well as a spacious library (containing 14,500 volumes), a well-appointed museum of anatomy, physiology, comparative anatomy, materia medica, botany, and pathological anatomy. The pathological museum is complete. A new block in Giltspur-street has recently been acquired and has been fitted up as lecture theatres and laboratories for physics, chemical physiology, experimental physiology, histology, and pharmacology.

Special Classes for the Primary and Final F.R.C.S. are held twice yearly. *Instruction in Preliminary Science* is given to University of London students in chemistry, biology, and physics throughout the year. Facilities for research work are afforded in the Clinical Units and Laboratories of pathological and other departments. *A Vacation Post-graduate Course*, adapted to general practitioners, is given annually.

Scholarships given in aid of Medical Study.—For five of the Scholarships and the Exhibition—namely, (*a*), (*b*), two Entrance Scholarships in Science of the respective values of £75 and £100; (*c*) Entrance Scholarship in Arts, £100; (*d*) Jeaffreson Exhibition, £50; and (*e*) Shuter Scholarship, £50—a full or University course at St. Bartholomew's Hospital is required. The awards of (*a*) and (*b*) are made after examination in selections from the subjects Chemistry, Physics, Zoology, Botany, Physiology, Anatomy, and Pathology; (*c*) and (*d*) are awarded after examination in Mathematics, Latin, Greek or French or German, a second language, Chemistry or Physics; (*e*) is awarded after competitive examination among Cambridge Graduates in Anatomy and Physiology. The more important of the other Scholarships and prizes are as follows:—Four Junior Scholarships—(*f*) No. 1, £30, Anatomy and Physiology; (*g*) No. 2, £20, Anatomy and Physiology; (*h*) No. 3, £25, Chemistry, Physics, and Biology; (*i*) No. 4, £20, Chemistry, Physics, and Biology; (*j*) Senior Scholarship, £50, Anatomy, Physiology, and Chemistry; the Kirkes Scholarship, £30 and medal, Clinical Medicine; (*l*) and (*m*) two Brackenbury Scholarships, £39 each, one in Medicine and one in Surgery; (*n*) Sir William Burrows Prize, 10 guineas, Pathology; (*o*) Skynner Prize, 13 guineas, Regional and Morbid Anatomy; (*p*) Matthews Duncan Medal and Prize, £20, Midwifery and Gynæcology; (*q*) Luther Holden Research Scholarship in Surgery, awarded by election, £10; (*r*) Lawrence Research Scholarship and Gold Medal in Pathology, awarded by election, £115; and (*s*) Baly Scholarship in Clinical Medicine, £50, awarded by examination.

The recreation ground of 10 acres is at Winchmore Hill for the use of the members of the Students' Union, which all students are expected to join. The Students' Union contains a large reading and smoking room, a committee and writing room, luncheon and dining hall, and a miniature rifle range.

Information may be obtained on application to the Dean of the Medical College: Dr. T. W. Shore. The Warden of the Residential College is Mr. R. M. Vick.

CHARING CROSS HOSPITAL.—The Hospital, to which the School is attached, contains 300 beds. There are special departments for Mental Diseases, Midwifery, Diseases of Women, of Children, of the Skin, Ear, Throat, Nose, and Teeth, for Orthopædic Cases, X Ray work, and for Electrical Treatment.

In the Medical School Demonstratorships and Assistant Demonstratorships are open to students of the School. Medical, Surgical, and Obstetric Registrars to the Hospital are appointed annually. Six House Physicians, six House Surgeons, and two Resident Obstetric Officers are appointed each year. Women students are admitted to the School and Hospital upon the same terms and conditions as men, and after qualification are eligible for resident Hospital appointments.

By an agreement with the University of London the School sends its Primary and Intermediate Students to receive their lectures and practical work at King's College, which is situated within four minutes' walk.

Final studies are taken in the school and hospital, where systematic lectures, demonstrations, and tutorial classes are arranged to cover all the subjects necessary for qualifying examinations. Departments are also available for other final subjects of Materia Medica and Operative Surgery.

An Institute of Pathology with a whole-time staff of scientific workers and fully equipped laboratories has been established. Students receive their training in Preventive Medicine, Pathology, Bacteriology, and Biochemistry here, and are encouraged to undertake research. Special facilities are available for post-graduate research and study.

The course in Ophthalmology is given in the Royal Westminster Ophthalmic Hospital adjoining. Special demonstrations are arranged for Post-graduates.

The Museum contains over 4000 specimens, including a notable collection of over 800 gynæcological specimens, the Cuthbert Lockyer Collection.

The social comfort and convenience of students are met by library, reading, and smoking-rooms, refreshment-room, in a Students' Club. The Club, which

[1] For Metropolitan Centres affording Post-Graduate Facilities see p. 439.

under the control of a committee of students, ovides needful athletic recreation, and includes also medical society.

Further information may be obtained on application the Dean, Dr. W. J. Fenton, Medical School, aring Cross Hospital, London, W.C.

ST. GEORGE'S HOSPITAL.—This hospital has a service 436 beds, of which 180 are allotted to surgical, 150 medical cases, and 100 are at the Convalescent ospital at Wimbledon. There are all the usual ecial clinical departments. One ward is set apart r Diseases Peculiar to Women, and there is a aternity Ward of 11 beds. Children's beds are aced in the women's wards. There are two hthalmic wards.

Twelve house physicians, 12 house surgeons, and casualty officers are appointed annually. Special tention is directed to the following paid appointents, among others, which are open to students ter they have held house office :—Resident Assistant ysician and Resident Assistant Surgeon, at £350 r annum each ; Medical Officer to the Atkinsonorley Convalescent Hospital, at £300 per annum ; edical Registrarship at £200 per annum , Surgical gistrarship at £200 ; Assistant Curatorship of the useum at £100 ; Obstetric Assistantship (Resident) £50 ; the post of Resident Anæsthetist at £100 ; the sts (2) of Junior Anæsthetists. each at £30.

Entrance Scholarships and Endowed Prizes of a tal value of £700 are awarded annually ; a detailed t is placed below. The entire teaching and laboraries are now devoted to purely clinical subjects, and rangements have been made with the authorities of ing's College for students who enter the first, second, third year of the curriculum as students of St. orge's to carry out the necessary courses of instruc-n at that College. Students then complete their urse, without payment of any entrance fee, in a hool entirely devoted to clinical work.

Scholarships and Prizes.—At this school five trance scholarships are given, the money value and e subjects of examination being as follows : (*a*) and) two William Brown Exhibitions, £120 and £80 spectively ; (*c*) and (*d*) two University Entrance holarships, 90 guineas and £70 respectively ; (*e*) evitt-Pendlebury Scholarship, £50, Anatomy and ysiology, except in the case of (*c*), subject of amination for which is General Pathology.

This year, in addition to these Scholarships, khibitions, each of the value of £40 and up to x in number, will be awarded to candidates of proved merit in the Entrance Scholarships Examiation. The others are as follows : (*f*) Allingham holarship in Surgery for Students qualified not more an two years, £85 ; (*g*) and (*h*) two Brackenbury izes, one in Medicine and one in Surgery, £33 each, en to students of not more than five years' standg ; (*i*) H. C. Johnson Memorial Prize, £19, Practical natomy ; (*j*) Pollock Prize, £23, Physiology, Physiogical Chemistry, and Histology ; (*k*) Clarke Prize, ; (*l*) Thompson Medal, £9, Clinical Reports ; *m*) Brodie Prize, £8, Clinical Reports ; (*n*) Webb ize, open to perpetual pupils, £34, Bacteriology ;) Sir Francis Laking Memorial Prize, £65, open to udents having registrable qualifications.

The St. George's Hospital Club, with smoking- and ncheon-rooms, is on the hospital premises, and an hletic ground at Wimbledon, is an amalgamation of e Hunterian Society, the *Gazette*, and the Rugby otball, cricket, lawn tennis, boxing, rifle, and golf ubs. Students have the advantage of a library of edical and scientific books which is kept up to date.

Further information may be obtained from the ean of the Medical School, Dr. A. Feiling.

GUY'S HOSPITAL.—This hospital contains 616 beds. he whole of the medical school has been rebuilt ring the last 27 years. It provides ample accomodation, with modern equipment, for all the noninical subjects of the medical curriculum.

House physicians, house surgeons, out-patient officers and assistant house surgeons, obstetric residents, house surgeons in the departments of ophthalmology and genito-urinary diseases, house physician in the department for diseases of children, clinical assistants, clerks to anæsthetists, surgeons' dressers, clerks to medical units, post-mortem clerks, extern obstetric dressers, and dressers and clerks in the special departments are appointed from among the students according to merit.

The following special departments are attached to the hospital : Departments of ophthalmology, laryngology, gynæcology, diseases of children, diseases of the nervous system, dermatology, otology, actinotherapeutics, anæsthetics, dentistry, orthopædics, vaccine, tuberculosis, genito-urinary and venereal diseases, Salomon's Welfare Centre (for Maternity and Children).

There is a Venereal Clinic, in accordance with the Scheme of the Local Government Board and London County Council. Lectures and clinical instruction are given, to which Medical Students and Practitioners are admitted without fee.

Scholarships. — Six entrance scholarships are awarded annually as follows :—(*a*) one War Memorial scholarship, of the value of £200, to be awarded alternately in Arts and Science (next award, July, 1928, in Arts ; (*b*) one Open Arts Scholar of £100 for students under 19 years of age ; candidates may offer themselves in either of the following groups : (1) English and any two of the following—viz., Latin, Greek, or Mathematics ; (2) English and any two of the following—viz., French, German, and Mathematics ; (*c*) one Open Junior Science scholarship for students under 20 years, £100 ; subjects, any two of the following : Inorganic Chemistry, Physics, and Biology, and Mathematics ; (*d*) a confined Junior Science scholarship of the value of £100 is offered for competition, annually in July, to candidates who have attended the Preliminary Science Classes at this School ; (*e*) two open Science scholarships : (1) a War Memorial scholarship of the value of £100, awarded annually in September ; (2) an open scholarship of the value of £80, awarded annually in September, for students who have completed the curriculum for, or passed the examinations in, Anatomy and Physiology for a medical degree in any University of the British Empire, and who, during the nine months immediately preceding the Scholarship examination, have not entered as students in any Metropolitan Medical School other than Guy's ; subjects, any two of the following : Anatomy, Physiology, Organic Chemistry, Pharmacology, General Pathology.

Within the grounds of the hospital are situated the residential college, with accommodation for 35 students, the students' club, with reading, smoking, luncheon, and dining-rooms, a fives court, and swimming bath. The athletic ground and club house is situated at Honor Oak Park, and can be reached in 20 minutes from the hospital.

Further information can be obtained from the Dean of the Medical School, Prof. T. B. Johnston.

UNIVERSITY OF LONDON : KING'S COLLEGE.—The Medical Faculty at this College deals with Preliminary and Intermediate subjects, and instruction in these subjects is given in the College laboratories by university professors and their assistants to students entering the College directly and also to students of the following four hospital schools which prepare only for the final examinations—viz., King's College Hospital, Westminster Hospital, St. George's Hospital, and Charing Cross Hospital. The Faculty is open to both men and women.

Scholarships.—(*a*) Two Warneford Entrance Scholarships of £30 each for four years. Examination in April, subjects selected from Divinity, Classics, Science. (*b*) Sambrooke Scholarship of £30 for three years. Examination in April, subjects selected from Classics, Science. (*c*) Worsley Scholarships : £100 in five annual instalments of £20. (*d*) Rabbeth Scholar-

ships of £30 and £15 for best work in first year. (*e*) Second Year Scholarship of £20 tenable for one year. (*f*) Daniell Scholarship of £40 for one year. Awarded on University Honours Examination. (*g*) The Layton and the Berridge Research Studentships of £150 per annum each.

For prospectus and further information application should be made to the Dean of the Medical Faculty, King's College, Strand, W.C. 2.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—The final subjects in the curriculum are taught at the Medical School of King's College Hospital, which is situated at Denmark Hill, S.E. 5.

The hospital has 400 beds, and provision will ultimately be made for 600. There are special departments for Bacteriology, Children, Clinical Pathology, Dermatology, Gynæcology and Obstetrics, Laryngology, Massage, Neurology, Odontology, Ophthalmology, Orthopædics, Otology, Physical Treatment, Psychological Medicine, Radiology, Rhinology, and Urology, each in charge of a specialist and his staff. Clinics are also held in applied pharmacology, cardiology, and medical chemistry.

The appointments open to students are those of clinical assistant to the special departments; medical, surgical, obstetric, and pathological tutorships; resident casualty officers, house physicians and house surgeons; resident anæsthetist; resident radiologist; bacteriologist; clinical pathologist; pathological, medical, surgical, and obstetric registrarships. Sixteen resident medical and surgical officers are appointed half-yearly.

Scholarships and Prizes.—(*a*) Warneford Scholarships, (*b*) Sambrooke Scholarship, (*c*) Rabbeth Scholarship, £20; (*d*) Medical Entrance Scholarships, £50 (Anatomy and Physiology), and £50 (Pathology and Pharmacology) open to students who (1) propose to take a degree at any British University, and have passed their University examination in Biology, Chemistry, and Physics, and who (2) will become students at King's College Hospital from date of entering upon Scholarship; (*e*) A Medical Entrance Scholarship in Science, value £50, tenable for five years, successful candidates to study at King's College and King's College Hospital; (*f*) Three Medical Scholarships, £40 for fifth-year students, £20 for third-year students, and £20 for second-year students; (*g*) Three Sambrooke Registrarships, open to matriculated students who have filled certain appointments in hospital; (*h*) Carter Prize, £15, Botany; (*i*) Tanner Prize, £10, Obstetrics and Diseases of Women; (*j*) Todd Prize, £4 4*s*. and medal, Clinical Medicine; (*k*) Two Burney Yeo Entrance Scholarships, £80 each, open to students of Oxford and Cambridge on the nomination of the Regius Professors; (*l*) two Raymond Gooch Scholarships, £120 each, open to students of British Universities on certain conditions; (*m*) an Epsom College Scholarship, value £50 at least, offered annually to a student of Epsom College who has taken the first part of the courses for Medical Degrees at the Universities of Oxford, Cambridge, or London. The Warneford and Sambrooke Scholars are required to take the subjects of the preliminary and Intermediate examinations at King's College, and the final subjects at King's College Hospital.

Dental School.—When the Hospital was built accommodation was provided for a Dental Department. This Department, fully equipped, is now in use, together with additional rooms for Dental Metallurgy, by the Dental School, which was opened in November, 1923, under the direction of Mr. A. Livingston, M.B., Ch.B., Mast. Dent. Surg. A full course is given in coöperation with King's College, and includes arrangements for students who desire to avail themselves of the special provisions of the Dentists Act.

The King's College Hospital Clubs and Societies Union consists of the Listerian and Musical Societies, the Students' Common Rooms, and the vario athletic and sports clubs. The athletic ground, ov six acres in extent, is on Dog Kennel Hill, about t minutes' walk from the hospital. There are al "Tennis Courts in the grounds of the Hospital a of "The Platanes"—a hall of residence for studen belonging to the hospital.

The Calendar of the School will be sent on applic tion to either of the following: Dr. H. Willough Lyle, Dean; Mr. S. C. Ranner, Secretary of t Medical School, King's College Hospital, Denma Hill, S.E. 5.

LONDON HOSPITAL.—The hospital, with its Medic College and Dental School, is situated in Mile En road, and contains 849 beds. There are speci departments for diseases of the Eye, Ear, Nose a Throat, Skin, Teeth, and Pediatric, Orthopæd Venereal, Radiological, Electro- and Physico-ther peutical and Inoculation Departments.

A Clinical Unit in Medicine, under the charge a whole-time director, provides for the more elabora methods of diagnosis and treatment, and takes leading part in the initiation and coördination medical research. The director has an assista director, two assistants, and two house physicians.

To each medical and surgical firm throughout t hospital there is attached a First Assistant, who responsible for instructing the clerks or dressers the firm in elementary medicine and surgery, a who assists the honorary members of the firm the preparation of their demonstrations. In t department of Obstetrics and Gynæcology there a two assistants and two resident accoucheurs. Speci courses of lectures and demonstrations are arrang in Medicine and Surgery and their ancillary subject Opportunities for research are provided under t supervision of the staff.

Owing to the large number of patients more appoin ments are open to students before and after qualific tion than at any other hospital. Holders of reside appointments have free board. Special classes a held for the examinations of the University of Londo for the Fellowship of the Royal College of Surgeon for the Membership of the Royal College of Physician and for other higher examinations. Special entries f medical and surgical practice can be made.

Scholarships and Prizes.—The following is a list the Scholarships and Prizes:—Price Scholarship £10 and one Entrance Scholarship of £50, subjects of Fir Medical Examination at the University of Londo Epsom College Scholarship, free education, subjec of First Medical Examination as above; Pri Scholarship, open to students of Oxford a Cambridge Universities, (1) £100, Pathology; (2) £7 Human Anatomy and Physiology; Buxton Prize, £4 subjects of Anatomy and Physiology; three Priz for Clinical Work, £20 each, Medicine, Surgery, a Obstetrics and Gynæcology; Sutton Prize, £2 Pathology; Duckworth Nelson Prize, biennial, £1 Practical Medicine, and Surgery; Letheby Prizes (£25, Chemistry and Chemical Pathology; eig Dressers' Prizes, amounting to £40, zeal, efficienc and knowledge of Elementary Clinical and Min Surgery; Hutchinson Prize, triennial, £60, Clinic Surgery; Treves Prize, £15, Clinical Surgery; tw Practical Anatomy Prizes, £6 and £4 respectivel Andrew Clark Prize, £14, Clinical Medicine and Path logy; T. A. Ross Proc. Acc. Prize, £10 10*s*., Clinic Medicine and Pathology; James Anderson Priz (4), £20, Elementary Clinical Medicine; Arnc Thompson Prize, £15, Diseases of Children; K. E. Payne Prize, Research Scholarship, £20, Patholog and Liddle Prize, triennial, £120.

Medical Research Funds.—Funds to the value of ov £90,000 permit of financial assistance being given students and graduates engaged in Medical Researc

Two Residential Hostels are provided for studen The recent additions to the hospital and colle buildings include the Dunn Clinical Laboratori The Bearsted Clinical Theatre, the Bernhard Bar

athological Institute, and a hostel for 40 resident edical officers. The Union Athletic Ground, 13 acres, within easy reach of the hospital.

Dean: Professor William Wright, London Hospital edical College, E. 1.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.—The ospital and Medical School are situated close to addington station (G.W.R.) having on one side a oor district of 500.000 persons, and on the other side ie residential districts of Kensington and Bayswater. he hospital contains 288 beds and extensions in rogress will raise this number to 334 and provide vo new operating theatres. By a scheme of affiliaon, for teaching purposes, of certain neighbouring ospitals, the teaching facilities extend over 1000 eds. The Medical School provides complete courses f instruction, and students can join at once on assing a Preliminary Examination in Arts. Terms egin in October, January, and April.

Clinical Units in Medicine and Surgery were estabshed in 1920. Lying-in beds have recently been dded, and, in addition to this, arrangements have een made by which all students take out a short ourse of instruction in Practical Midwifery at Queen harlotte's Hospital without additional fee.

Students specially interested in Pathology and acteriology have singular advantages at St. Mary's. he institute comprises seven special departments, ie whole being under the personal direction of Sir lmroth Wright, F.R.S. Research Scholarships of 200 each are awarded annually to students working the departments of the institute; and research eds have been instituted. Clerkships in Pathology, acteriology, and Chemical Pathology, lasting for a eriod of three months, are open to students of the fth year, and enable them to carry out the Pathogical and Bacteriological investigations of the ards, and learn the necessary technique under ipervision. Seventy-two of these posts are available nnually. Numerous appointments are open to ewly-qualified members of the Medical School, ncluding ten salaried posts with salaries varying om £200 to £750 per annum.

Entrance Scholarships.—Two Entrance Scholarips of the value of £210 each are awarded annually, y nomination in July, the Geraldine Harmsworth cholarship, £200, and one or more University Scholarips of £200 are awarded in July.

The Athletic ground (10 acres) is situated at Vembley and can be reached in 20 minutes by a onstant service of trains. A large pavilion has ecently been added.

For further information apply to the Dean of the edical School.

MIDDLESEX HOSPITAL.—The hospital contains over 50 beds, with special wards for Cancer, Maternity nd Gynæcological and Ophthalmological cases, and or Diseases of Children. Other special departments nclude those for Diseases of the Eye, Ear, Nose and hroat, and Skin; Nervous diseases, Orthopædic cases, Diseases of the Rectum and Venereal Diseases. There also an Electro-Therapeutic department. The Cancer harity, containing 92 beds and Special Investigation aboratories, offers unrivalled opportunities for the udy of Cancer, both in its clinical and pathological spects. In the Electro-Therapeutic Department, udents obtain instruction in the Treatment of Lupus nd Cancer by the X ray method of treatment.

The Medical School, which includes the Blandutton Institute of Pathology and the Cancer Research aboratories is fully equipped for the theoretical and ractical teaching of all the subjects of the medical urriculum, and for the Diplomas in Public Health, for hich two courses are held yearly, commencing in pril and October. Ample laboratory and classoom accommodation is provided. The teaching aff includes 6 Professors, 32 recognised Teachers, Demonstrators, 4 tutors. The Bland-Sutton Institute of Pathology is completely equipped for routine hospital investigations, teaching and research work, and contains a new lecture theatre and large pathological, bacteriological, biochemical, and clinical laboratories, also smaller laboratories for individual research work. A well-equipped Anatomical and Pathological Museum and Reference Library offer every facility.

Other features of interest are: the institution of a course in Medical Radiology and Electrology, under the direction of the "Joel" Professor of Physics; D.P.H. course, under the direction of Dr. Charles Porter, M.O.H., St. Marylebone. A primary F.R.C.S. class is held, and special classes to prepare students for the Intermediate Examinations of the Universities.

All appointments are made without fee of any kind, and the following are appointed at intervals annually: six house physicians, eight house surgeons, two obstetric and gynæcological house surgeons, two casualty medical officers, two casualty surgical officers, two resident anæsthetists, and two resident officers to the special departments. The medical and surgical casualty officers are appointed twice a year. Nine registrars are appointed annually. Non-resident qualified clinical assistants are appointed to assist in the various out-patient departments. Clinical clerks and surgical dressers are also appointed in every department.

Scholarships and Prizes.—Two Entrance Scholarships, value £100 each, and two University Scholarships, value £90 and £60, are awarded annually in September. The successful candidates are required to become general students of the school. A Freer Lucas Scholarship is awarded annually on the nomination of the Headmaster of Epsom College. There are also two Broderip Scholarships, value £60 and £40 respectively; the Lyell Gold Medal and Scholarship, value £55 5*s.*; the John Murray Medal and Scholarship, value £25 (awarded every third year); the Freeman Scholarship, value £30; the Hetley Clinical Prize, value £25; the Leopold Hudson Prize, value 11 guineas; and the Second Year's Exhibition, value 10 guineas. There are also numerous class prizes.

The Amalgamated Students' Club includes the following: Medical Society, Common Room Society, Musical Society, cricket club, football clubs, athletic club, rowing club, chess club, lawn tennis club, and hockey club. There are a restaurant and gymnasium in the school buildings, and large athletic grounds at N. Wembley, with new pavilion.

For further particulars apply to the Dean or the Secretary of the Medical School.

ST. THOMAS'S HOSPITAL.—This Hospital contains 644 beds. There are special departments for the treatment of women, children, diseases of the eye, ear, nose and throat, skin, teeth, and for orthopædics. Nervous and mental diseases are treated in special departments. An electro-cardiograph has been installed for the investigation of diseases of the heart. The Tuberculosis Department forms a part of the Lambeth scheme for treatment of patients and for instruction. The Venereal Department has been established as part of the London County Council scheme. Departments for Radiology, Electro-therapy, Phototherapy, Massage and Remedial Physical Exercises are also special features. A speech clinic has been inaugurated in connexion with the Children's Department. Exceptional facilities are offered in the hospital laboratories for the study of General Pathology, Clinical Pathology, Chemical Pathology, and of Treatment by Serums and Vaccines. Surgical operations take place in the main theatres every day, except Saturdays, at 2 P.M. Clinical teaching in the wards, out-patients' and special departments, is available every day of the week. Clinical lectures are delivered every Wednesday during the sessions. A Clinical Unit in Medicine has been established.

All appointments in the hospital are open to students without extra fee. Clinical clerks and

dressers for in- and out-patients are selected from students who have completed their third years' work. Every student acts as clerk in the post-mortem room and in one of the pathological laboratories, takes his turn on maternity duty under proper supervision in the maternity ward and district, thus obviating any necessity for seeking instruction elsewhere. Students are instructed in the administration of anæsthetics by the hospital anæsthetists.

The arrangements are made to meet the requirements of all the Examining Bodies. Special classes are held for the examinations at the University of London and for the First and Final Fellowship Examinations of the Royal College of Surgeons of England. Tutorial classes in all subjects precede the various examinations. The hospital is easily accessible from all parts.

Appointments.—A Resident Assistant Physician and a Resident Assistant Surgeon, salary £225 each per annum, and a Resident Anæsthetist, salary £200 per annum, are appointed annually. Two Hospital Registrars, Medical and Surgical, at an annual salary of £250 each are appointed yearly. The tenure of these offices may be renewed for a term not exceeding two years. A Pathological Registrar to the Department of Obstetrics and Gynæcology (at an annual salary of £250), an Ophthalmic Registrar (at an annual salary of £50), and an Orthopædic Registrar (unpaid) are appointed yearly. Two Senior Resident Casualty Officers (Medical and Surgical) are appointed yearly. Eight Resident Casualty Officers and Anæsthetists are appointed every six months. Seven House Physicians (including two Obstetric House Physicians, and one House Physician to the Department of Diseases of Children), nine House Surgeons (including two Ophthalmic House Surgeons, one Orthopædic House Surgeon, and two House Surgeons to the Ear, Nose and Throat Department) are appointed every six months. Clinical Assistants in the Special Departments are appointed every three months, and hold office for six months if recommended for re-election. There are three Assistants in the Department of Pathology; the Senior receives £600 a year, and the two Juniors £450 each.

Scholarships and Prizes.—At this school there are five Entrance Scholarships—namely, two in Arts, equivalent to the tuition fees for the first year of study; two in Natural Science, of the value of £150 and £60 respectively; and the University Scholarship of £100 in any two of the following: Anatomy, Physiology, Pathology, Chemistry. The value of all entrance scholarships must be taken out in tuition fees. The money value and subjects of examination of the remainder are as follows: (*a*) William Tite Scholarship for second-year students, £25; (*b*) and (*c*) Musgrove Scholarship or (alternately) Peacock Scholarship, each for third-year students and tenable for two years, £35 each; (*d*) Mead Medal, Medicine, Pathology and Hygiene; (*e*) Wainwright Prize, Medicine; (*f*) Toller Prize, Medicine; (*g*) Cheselden Medal, Surgery and Anatomy; (*h*) Clutton Memorial Medal in Clinical Surgery, biennial; (*i*) Beaney Scholarship, £50, biennially, Surgery and Surgical Pathology; (*j*) Solly Medal and Prize, biennial, Reports of Cases; (*k*) Sutton Sams Prize, biennial, Report of Cases; (*l*) Bristowe Medal, Pathology and Morbid Anatomy; (*m*) Hadden Prize, Pathology and Morbid Anatomy; (*n*) Grainger Testimonial Prize, £31 10*s*., Anatomy and Physiology; (*o*) Louis Jenner Research Scholarship, tenable for two years, £60 annually, Pathology; (*p*) School Council Research Scholarship, £250 per annum, tenable for two years; (*q*) John and Temple Research Fellowship, tenable for two years, £450, Children.

St. Thomas's House, the New Students' Club recently opened, comprises spacious dining-, smoking-, and reading-rooms, and accommodation for some 60 resident students. There is no occasion for students to leave the hospital premises during working hours.

Further information may be obtained from the Dean of the Medical School.

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE.—University College has been constituted a University centre for the teaching of medical science. The College Faculty of Medical Sciences comprises the Departments of Physics, Chemistry, Botany and Zoology (the Preliminary Medical Sciences); also the Departments of Anatomy, Histology, Physiology, Biochemistry, and Pharmacology (the Intermediate Medical Sciences), and the Department of Hygiene and Public Health. Research work is undertaken in all departments. The completion of the Institute of Medical Sciences, which the generosity of the Rockefeller Foundation made possible, provides exceptional facilities for research and post-graduate study in anatomy, physiology, and pharmacology. In particular might be specified the opportunities for investigation in human and comparative embryology and neurology, in histology, radiology, anthropology, biochemistry, and experimental physiology and experimental embryology. Arrangements exist for the close correlation of work in the Institute with University College Hospital and Medical School.

Scholarships and Prizes.—The first three items of the present list require a complete intermediate course at University College. The money value and subjects at examinations are as follows: (*a*) The Buckney Scholarship, 160 guineas; (*b*) and (*c*) two Entrance Exhibitions, 55 guineas each, Chemistry, Physics, Botany, and Zoology; (*d*) Cluff Memorial Prize, £1 biennially, Anatomy, Physiology, Pharmacology, and Chemistry; (*e*) Schafer Prize in Physiology, £5 triennially; (*f*) Sharpey Physiological Scholarship, £115, Biological Sciences; (*g*) Morris Bursary for sons of deceased professional men, by nomination, tenable for two years, £16 a year; and (*h*) five Gold and five Silver Medals awarded annually in various departments.

Women students are admitted.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.—The final subjects in the curriculum are taught at the Medical School of the hospital, which has 500 beds including 60 in the new obstetric hospital. The course of instruction is suitable for the examinations at the Universities of Oxford, Cambridge, Durham, and other British Universities, and for the medical education required by the Examining Board in England and the Society of Apothecaries. Clinical Units in Medicine, Surgery, and Obstetrics and Gynæcology are now in operation. The whole-time Directors of the Units are concerned with the organisation of the teaching generally, but the honorary staff are responsible for the largest share of the teaching in the wards and Out-patient Department of the hospital. The department of otology, rhinology, and laryngology (the Royal Ear Hospital) has been provided with a separate building in Hunter-street, adjacent to the obstetric hospital. It contains 38 beds, including eight private wards for patients of limited means. The hospital is equipped with all modern appliances for investigation. The new buildings of the Obstetric Hospital of 60 beds (rendered possible by the Rockefeller Benefaction), the new Residents' House (with accommodation for 30 residents and students), the extension to the Nurses' Home, and new research laboratories for the Medical School are now finished and in full occupation.

Those who are desirous of carrying out original research in Pathology, including Morbid Anatomy, Bacteriology, Experimental Pathology, and Chemical Pathology, are admitted to work in the laboratories of the school by the Professor of Pathology and under certain conditions can receive grants from the Charles Graham Medical Research Fund. A special course of instruction is given in conjunction with University College for preparation for the examinations for Diplomas in Public Health of the various universities and examining bodies. In the Dental School in Great Portland-street, formerly known as the National Dental Hospital, there is afforded the opportunity for attending lectures and practical instruction in diseases of the mouth and teeth.

Appointments.—Clerkships and dresserships to the physicians, surgeons, anæsthetist, and pathologist are

lotted amongst the students of the hospital. aternity students are appointed each month and side in the Students' House connected with the edical School and Hospital. Fourteen house ysicians, six house surgeons, ten obstetric assistants, vo house surgeons to the Royal Ear Hospital (of the tal number of resident officers not more than three ay be held by women students at any one time) are lected annually by examination from among the nior students who have a medical qualification. ll house officers reside free in the hospital. In ldition to these posts there are certain special ppointments which are vacant from time to time nd are filled by senior students of the hospital: esident Medical Officer, Surgical Registrar, Medical egistrar, Obstetric Registrar, Harker-Smith Cancer egistrar, Ophthalmic Registrar, Registrar to the oyal Ear Hospital, Casualty Medical Officer and a asualty Surgical Officer, Assistants in Ear and hroat, Skin and Venereal Diseases Departments, nd House Anæsthetist.

Scholarships and Prizes.—At this School the first vo Scholarships (*a*) and (*b*) entitle the holder to a mplete course at University College and University ollege Hospital Medical School; the second two (*c*) nd (*d*) entitle to a final course at the Medical School. he money value and subjects of examination are as llows:—(*a*) Entrance Scholarship, Bucknill, 135 ineas, Chemistry, Physics, Botany, and Zoology;) Epsom Free Medical Scholarship, subjects of reliminary Scientific Examination and Nomination y Epsom College; (*c*) and (*d*) two Goldsmid Entrance xhibitions 112 guineas each, Anatomy or Physiology, General Pathology; (*e*) Graham Scholarship in athology, £300 per annum for two years, awarded y the Senate of the University of London; (*f*) tkinson Morley Scholarship, tenable for three years, 45 per annum, Surgery; (*g*) Atchison Scholarship, enable for two years, £55 per annum, General roficiency in Medical Studies; (*h*) Magrath Clinical cholarship, about £150, Clinical Cases; (*i*) Percival lleyn Scholarship, about £75, Surgery; (*j*) Filliter xhibition, £30, Pathology; (*k*) Erichsen Prize, £10 10*s*., ractical Surgery; (*l*) two Senior and two Junior ellowes Clinical Medals for Clinical Medicine; (*m*) two iston Gold Medals for Clinical Surgery; (*n*) Alexander ruce Gold Medal for Pathology and Surgery; and) Tuke Silver and Bronze Medals for Pathology.) Radcliffe Crocker Travelling Scholarship for ermatology. (*q*) Leslie Pearce Gould Travelling cholarship for Surgery.

The *Museum of Pathological Anatomy* is open for tudy daily, and microscopic sections of most of the pecimens have been prepared and are available for he use of students on application to the Curator. The Anatomical Museum of the University of London, University College, is open to all students of University ollege Hospital and Medical School on the recom- nendation of the School Committee. The Medical ibrary, open daily to every student of the School, ontains about 20,000 works on medical subjects, ncluding all the current text-books and works of eference required for study or research.

The Medical Society of University College Hospital Medical School exists for the dual purpose (1) of romoting the study of medical and surgical science, nd (2) of promoting social intercourse among its embers. All male students of the Medical School are equired to become members. Meetings are held once fortnight for the purpose of discussing subjects onnected with the study of medicine. In its social spect the society includes various athletic clubs and uperintends the gymnasium and squash racquet ourt in the Medical School, and the Athletic Ground t Perivale.

University College Hall, Ealing, is recognised by he authorities as a residential hostel. The Students' louse in University-street contains large and com- ortable rooms. The Maternity Students occupy hem on payment of a moderate charge.

Full information can be obtained from the Dean of the School.

WESTMINSTER HOSPITAL.—The Hospital contains 236 beds. By a scheme for the concentration of the teaching of the preliminary and intermediate subjects of the curriculum, which has the support of the London University, an arrangement has been made by the Westminster School for the teaching of these subjects at King's College. Students, however, may join the Westminster Medical School as formerly and may compete for Entrance Scholarships as heretofore. There are separate departments for Diseases of the Eye, Skin, Teeth, Ear, Nose, and Throat, for Orthopædic practice, for Diseases of Women, for Diseases of Children, for Radiography, for Venereal Diseases, and for Massage, Electrical and Light Treatment. The Anatomical, Pathological, and Materia Medica Museums are open to all students of the school.

The usual registrarships and house appointments are open to male and female students.

Scholarships and Prizes.—The following Entrance Scholarships are offered for competition: Winter Session: Two Scholarships in Anatomy and Physiology, £70 each. Summer Session: Two Scholarships in Anatomy and Physiology, £70 each. A certain number of Scholarships have been allotted to Universities of England, Wales, and the Colonies, and to Public Schools. These Scholarships are awarded entirely on the nomination of the principal of the university or school. During the period of study the following prizes may be competed for: Sturges Prize in Clinical Medicine, about £6, Reports on Cases; Clinical Surgery Prize, £5, Reports on Cases; Chadwick Prize, £21 in books or instruments—Medicine and Surgery, including Pathology and Applied Anatomy and Physiology; Frederic Bird Medal and Prize, open to Fourth-year Students, £14 in medal and books or instruments—Midwifery, Diseases of Women, Medicine, Pathology, Forensic Medicine and Bacteriology, and Public Health and Toxicology; Abrahams Prize in Clinical Pathology, 5 guineas, a Paper and Tests in Practical Work; Alfred Hughes Memorial Prize, open to Second-year Students, about £5 in books or instruments—Anatomy; Huxley Memorial Prize, 3 guineas in books or cash, open to Second-year Students—Physiology; Carter Gold Medal and Prize for Botany, open to Students of not more than three years' attendance, gold medal and books of the joint value of £15; Jelf Medal awarded to Third-year Students; Second-year Scholarship £20, Elementary Anatomy, Physiology, Histology, and Organic Chemistry; Daniell Scholarship, £40, Chemistry; Rabbeth Scholarships open to First-year Students, one of £30 and one of £10; Class Examinations in the Preliminary Scientific Course.

The Athletic Grounds are situated in Tooting and are reached in 20 minutes from the hospital.

Inquiries should be addressed to the Dean of the Medical School.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN, 8, Hunter-street, W.C.—The Royal Free Hospital contains 240 beds. The Hospital also has large Casualty and Out-patient Departments, and Departments for Special Diseases. A new and specially equipped block contains the Obstetrical and Gynæcological Unit, which controls 68 beds. A Children's Department, including 18 cots, an Orthopædic Department, and a Light Department have recently been added to the Hospital. Maternity Districts are attached to the Unit operating in the Gray's Inn-road and Essex-road areas. A new Maternity Hostel has been acquired at 434, Essex-road. Students also attend the in-patient and out-patient practice of the Elizabeth Garrett Anderson Hospital, Cancer Hospital, Hospital for Sick Children, Great Ormond-street, National Hospital for Paralysed and Epileptic, South London Hospital, and Royal London Ophthalmic Hospital.

A Clinical Unit in Obstetrics has been established. Courses are arranged for the Primary Fellowship Examination of the College of Surgeons; also for dental students in conjunction with the Royal London Dental Hospital, Leicester-square.

The School buildings have been entirely rebuilt in recent years, and there are spacious, well-equipped laboratories, which afford every facility for efficiency of teaching and practical work in all departments.

There are residential chambers at 8, Hunter-street, 25, Gordon-square, 16, Brunswick-square, 5, Mecklenburgh-square, and 36, Tavistock-square, and the Warden can be consulted on the subject of other residences for students. The Students' Union arranges the social, athletic, and other clubs and societies. The School sports ground, consisting of 7½ acres of freehold land, is situated at Sudbury (easily reached from Euston Station).

Students after qualification can hold the posts of house physicians, house surgeons, obstetric assistants, clinical assistants, assistant anæsthetist, medical, gynæcological, and surgical registrars, and assistant pathologist; and at the Medical School the posts of demonstrators in the departments of Anatomy, Physiology, Pharmacology, Biology, Chemistry, and Physics. Many other resident posts in London and elsewhere are also open to them.

Scholarships and Prizes.—(*a*) Isabel Thorne Scholarship, £30. (*b*) St. Dunstan's Medical Exhibition, £60 a year, tenable for three or five years. (*c*) Mrs. George M. Smith Scholarship, £50 a year, tenable for three or five years. (*d*) Bostock Scholarship, tenable for two or four years, £90 (*e*) Mabel Sharman-Crawford Scholarship, tenable for four years, £20 a year. (*f*) Sir Owen Roberts Scholarship, £75 a year for four years. (*g*) Mabel Webb Research Scholarship, tenable for one year and renewable, £30, Physiology, Chemistry, or Pathology. (*h*) Fanny Butler Scholarship, tenable for four years; next award in July, 1931, £16. (*i*) John Byron Bursary, tenable for two years, for students already in the School requiring assistance for the prosecution of their medical studies; application to the Secretary by March 31st next, £20. (*k*) Helen Prideaux Prize and Julia Ann H. Cock Prize, awarded alternately every year to a student who has become qualified during the two years immediately preceding the award, and to be spent in assisting the holder to further study, £60 each. (*l*) Dr. Edith Pechey Phipson Post-graduate Scholarship of the value of £100, awarded annually in June. It is open to all medical women, preferably coming from India, or going to work in India, for assistance in Post-graduate study. (*m*) Sarah Holborn Scholarship, value £20 a year for three or five years, awarded every alternate year; next award in 1929. (*n*) Dr. Margaret Todd Scholarship, tenable for four years, £37 10*s*. a year, awarded in alternate years; next award in July, 1929. (*o*) Lieutenant Edmund Lewis and Lieutenant Alan Lewis Memorial Scholarship, tenable for four years, awarded every four years; next award in July, 1928. (*p*) Alfred Langton Scholarships, tenable two years, one awarded annually, £50 a year. (*q*) School Jubilee Bursary, tenable for three years, £50 a year. (*r*) Flora Murray Bursary, awarded every year to a fifth-year student, £50. The Dorothy Chick Gift, £20, is awarded annually for efficiency in Practical Midwifery. Two Richardson-Kuhlmann Prizes are given each year, value £12, for proficiency in Clinical Obstetrics, value £8, for proficiency in senior subjects respectively. Two Evans Prizes of £2 2*s*. and £1 1*s*. are given each year on the results of the class examination in Midwifery. The Evans Prize for Operative Midwifery, value £5 5*s*.; the Dr. Helen Webb Prize for Children's Diseases, £5 5*s*.; the Mary Swann Prize in Gynæcology, £5 5*s*.; the Edward Hanson Prize in Physiology, £2 10*s*.; and the Edith Pechey Phipson Prize in Pharmacology, value £3 3*s*., are awarded annually.

Inquiries may be addressed to the Warden and Secretary of the Medical School.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE (University of London).—The new Departments of Bacteriology and Immunology under Prof. Topley, and of Epidemiology and Vital Statistics under Prof. Greenwood, will open with advanced courses of study on Oct. 4th next, the Bacteriology course (covering the new Diploma) at 6, Gordon square, W.C., and the Epidemiology course at the National Institute for Medical Research at Hampstead. The existing Departments of the School dealing with the courses of study for Tropical Medicine and Hygiene will continue for the present in the building occupied by the Hospital for Tropical Diseases at Endsleigh-gardens. There are two such courses in the year, each lasting 20 weeks, inclusive of examinations. The dates for the commencement of each course are Oct. 3rd, 1927, and March 12th, 1928, respectively. The course covers the work required for the D.T.M. and H. (England) and part of that required for the M.D. in Tropical Medicine of the University of London. For facilities for clinical and pathological study the School is indebted to the Seamen's Hospital Society, who, prior to August 1st, 1924, were responsible for the London School of Tropical Medicine. Research studentships and scholarships are available, and full particulars with regard to these and the courses of study generally may be obtained from the Secretary of the School, 23, Endsleigh-gardens, Euston-road, W.C.

UNIVERSITY OF DURHAM.

Nine degrees, two Diplomas, and one Licence are conferred—viz., the degrees of Bachelor of Medicine, Bachelor of Surgery, Doctor of Medicine, Master of Surgery, Doctor of Surgery, Bachelor of Hygiene, Doctor of Hygiene, Bachelor of Dental Surgery and Master of Dental Surgery, the Diploma in Public Health, Diploma in Psychiatry, and the Licence in Dental Surgery.

For the degrees of *Bachelor of Medicine* and *Bachelor of Surgery* there are four professional examinations. The subjects of the First Examination are—Elementary Biology and Organic Chemistry. The subjects of the Second Examination are—Anatomy and Physiology. The subjects of the Third Examination are—Materia Medica, Pharmacology, general principles of Therapeutics and Pharmacy, Medical Jurisprudence, Public Health, and Pathology and Bacteriology. The subjects of the Fourth Examination are—Medicine, Clinical Medicine, Therapeutics, Surgery, Clinical Surgery, Operative Surgery, Midwifery and Gynæcology, Psychological Medicine, and Diseases of the Skin, of the Throat, Nose, and Ear, and of Children, and Ophthalmology. It is required that at least one of the five years of professional education shall be spent at the University College of Medicine, Newcastle-upon-Tyne.

For the degrees of *Doctor of Medicine* and *Master of Surgery* a candidate must not be less than 24 years of age. He must also have obtained the degrees of Bachelor of Medicine and Surgery of the University of Durham, and must have been engaged for at least two years subsequently to the date of admission to these degrees in research work, or in attendance on the practice of a recognised hospital, or in the naval or military services, or in medical or surgical practice. The candidate for the M.D. degree may present an essay or undergo a special clinical examination in the Theory and Practice of Medicine. The subjects of examination for the M.S. are:—Principles and Practice of Surgery, Surgical Pathology, Surgical Anatomy, Surgical Operations, Clinical Surgery.

Doctor of Medicine (without residence).—The University of Durham has instituted a special examination whereby the degree of Doctor of Medicine may be obtained without residence. Candidates must not be under 40 years of age and must have been in active practice for 15 years as registered medical practitioners. They must also produce certificates of moral character from three registered members of the medical profession. The fee is 50 guineas (including the degree fee), of which 20 guineas is retained if the candidate fails to satisfy the examiners.

Doctor of Surgery.—The University of Durham grants the Degree of Doctor of Surgery. Candidates

or this degree must be registered medical practitioners, and not less than 24 years of age. They must devote three years, subsequently to obtaining registrable qualification, to the study of Surgery and ancillary subjects. One at least of the three years must be spent in the University. The candidate must submit to the Professor of Surgery the course of study he proposes to follow, and this course must be approved by the Board of the Faculty of Medicine. One year shall be devoted mainly to work in the departments of Anatomy, Physiology, Pathology, and Bacteriology, and the candidate must submit evidence of having so worked. Not less than six months of another year must be spent as resident surgeon in a recognised teaching hospital, and the rest of the year in the study of surgery in a recognised medical centre. Not less than six months of one of the three years must be spent in surgical study abroad.

Candidates for any of the above degrees, diplomas, or licence must give at least 28 days' notice to the Registrar, College of Medicine, Newcastle-upon-Tyne. In the case of the M.D. (essay) examination candidates must send in their essays before April 1st.

Scholarships and Prizes.—The following are awarded:—University of Durham Entrance Scholarship, £25 a year for four years; Pears' Entrance Scholarship, £40 a year for three years (awarded every third year); Province of Durham Masonic (Entrance) Scholarship, £60; Heath Scholarship for Surgery, £200, available every second year; Rutherford Morison Surgical Scholarship, £180, available every third year.

The following Scholarships are tenable for one year, namely:—Tulloch Scholarship for Elementary Biology and Organic Chemistry, £20; Dickinson Scholarship for Medicine, Surgery, Midwifery, and Pathology; Gold Medal and £20; Charlton Scholarship for Medicine, £25; Gibb Scholarship for Pathology, £28; Duke Armstrong Scholarship for Comparative Pathology, £25; Stephen Scott Scholarship for Surgery, £40; Philipson Scholarships for highest marks in final M.B., B.S. Examinations, two of £48 each; Goyder Memorial Scholarship for Clinical Medicine and Clinical Surgery, interest on £325; Gibson Prize for Midwifery and Diseases of Women and Children, £10; Turnbull Prize and Silver Medal for Surface Anatomy; and Outterson Wood Prize for Psychological Medicine, £10; Sewell Memorial Prize and Silver Medal for Clinical Pathology.

For further information apply to the Registrar of the College.

COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—The clinical courses are taken at the Royal Victoria Infirmary. In it adequate accommodation is provided for the study of the various special subjects, in addition to the routine clinical work, while midwifery is studied at the Princess Mary Maternity Hospital. The bacteriological laboratory is adjacent to Armstrong College.

Students' Union Buildings have been erected and furnished at a cost of over £54,000, and are now in daily use.

NEWCASTLE-UPON-TYNE ROYAL VICTORIA INFIRMARY.—The Infirmary has 572 beds. Clinical lectures are delivered by the Physicians and Surgeons weekly and ward demonstrations are given daily. Tutorial classes are held by the Assistant Physicians and Assistant Surgeons, and demonstrations are given in the several out-patient departments daily. Pathological demonstrations are given by the Pathologist daily or as opportunity occurs, and in the new buildings nothing has been spared in perfecting scientific equipment. In addition to medical and surgical in-patient and out-patient departments the following special departments are fully equipped for teaching students: Ophthalmic, Throat, Nose, and Ear, Skin, Gynæcological, and Electrical. The hospital building contains the following laboratories: 1. Special Pathological Laboratory, attached to the post-mortem rooms. 2. Bacteriological Laboratory, in which all clinical bacteriological investigations are carried out with a view to treatment by vaccines and serums. 3. There is in addition a Clinical Laboratory attached to each ward and to the out-patient department. There are five operating theatres in use in the hospital. The winter session of 1927 opens on Oct. 4th and the summer session of 1928 on April 11th.

Applications for detailed information should be made to the Dean, Dr. Horsley Drummond, at the hospital.

Practical Midwifery is studied at the Princess Mary Maternity Hospital, a new building, excellently equipped, with 90 beds. Instruction is given in Psychological Medicine at the City of Newcastle Mental Hospital. A special course of instruction is given in the City Hospital for Infectious Diseases by the City Officer of Health. Ophthalmology is taught at the Northumberland, Durham, and Newcastle Infirmary for Diseases of the Eye.

Post-Graduate Instruction.—1. General courses in Clinical Medicine, Surgery, and Pathology at the Royal Victoria Infirmary, meeting once weekly for ten weeks. One course will be held from October to December and one from April to June. 2. Special courses of clinical instruction, meeting once weekly for ten weeks, in the following subjects: Gynæcology; Diseases of the Eye; Diseases of the Throat, Nose, and Ear; Diseases of the Skin; Venereal Diseases; Neurology; Diseases of Children; Electro-therapeutics and Radiology; special courses in Midwifery will be held at the Princess Mary Maternity Hospital. 3. An intensive course of 14 days' duration in the early part of the Summer Vacation. 4. In addition to the regular post-graduate courses practitioners may attend the ordinary medical and surgical practice of the Royal Victoria Infirmary for specified periods.

UNIVERSITY OF BIRMINGHAM.

The University of Birmingham grants the degrees of M.B., Ch.B., M.D., Ch.M., and Ph.D. (for Research Study), and also a degree and a diploma in Public Health. The course for the Bachelors' degrees extends over five years from the date of commencement of professional study. As a rule the first four of these years must be spent in the University, but the Senate has power of recognising attendance at another University as part of the attendance qualifying for these degrees and of recognising examinations passed at such other Universities as exempting from the examinations in Biology and Organic Chemistry. In the case of such students at least three years must be spent in attendance upon classes at the University. The fifth year may be spent at any other medical school recognised by the University.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—The student must have passed the Matriculation Examination of the Joint Board or an examination accepted in lieu thereof, and a recognised Pre-Medical Examination in Chemistry and Physics. All communications respecting the Matriculation Examination, and examinations accepted in lieu thereof, must be sent to the Secretary, Joint Matriculation Board, 315, Oxford-road, Manchester. First Examination.—Part I., Elementary Biology and Organic Chemistry; Part II., Anatomy and Physiology. Second Examination.—General Pathology and Bacteriology, Materia Medica, and Pharmacy. Third Examinations (at the end of the fourth year).—Forensic Medicine, Toxicology, Public Health, and Therapeutics. Two years' hospital work must have been accomplished. Final Examination.—Medicine, Surgery, Midwifery, Diseases of Women, Mental Diseases, and Ophthalmology. Attendance at a general hospital for a year after the passing of the fourth examination will be required, also attendance at a fever hospital three months, maternity hospital three months, and mental hospital three months. Vaccination instruction must be taken and courses of Ophthalmology, Venereal and Skin Diseases, and Diseases of Ear, Nose, and Throat, Medical and Surgical Anatomy, and Operative Surgery.

Distinctions may be awarded in the subjects (severally) of the First, Second, Third, and Final, and Honours in the Final Examination.

Degrees of Doctor of Medicine and Master of Surgery. At the end of one year from the date of having passed the final M.B., Ch.B. examination the candidate will be eligible to present himself for the higher degrees of either Doctor of Medicine or Master of Surgery or both. Candidates have to present a thesis on some subject embraced in the medical curriculum, and pass a general examination in Principles and Practice of Medicine for the M.D., and one in Principles and Practice of Surgery, including operations on the cadaver, for the Ch.M., or, at the discretion of the examiners, in a special branch of Medicine or Surgery respectively. A thesis of exceptional merit may exempt from any part of these examinations, in which Honours may be awarded.

Degree of Ph.D.—The Degree of Doctor of Philosophy is conferred upon candidates who possess a medical degree of a British, Colonial, or other university approved of by the Senate of the University, and who have been engaged, to the satisfaction of the Medical Faculty, in advanced study and research for a period of not less than two years, either in a laboratory of the University or in one or more of the hospitals associated with the University. After the first year candidates may carry on research elsewhere, under approved conditions, and on completing the course present a thesis and submit themselves for oral and possibly written examination.

Scholarships and Prizes.—The following are awarded:—(*a*) Myers Travelling Studentship of £300, tenable for one year, offered in alternate years, awarded by vote of committee to M.B., Ch.B. candidates, tenable at some University or Hospital not in Great Britain or Ireland (available for year 1927–28); (*b*) two Ingleby Scholarships of £10 each awarded to the candidate at Final Examination obtaining highest "first-class" marks in the subjects of Midwifery and Diseases of Women; (*c*) Sydenham Scholarship of £42, tenable for three years, award of Council to orphan sons of medical practitioners; (*d*) Sands Cox Scholarship of £21 per annum during two years, awarded to the candidate, not being more than 19 years of age, taking the highest marks at the Higher School Certificate Examination of the Joint Matriculation Board; (*e*) Dental Scholarship of £37 10*s*., Open Competitive Examination in subjects learned during apprenticeship; (*f*), (*g*), (*h*), and (*i*) Four Queen's Scholarships of £10 10*s*. each. In the Second and Fourth Examinations the Scholarship is awarded respectively to the student taking the first place and obtaining not less than 75 per cent. marks. In the Third Examination the Scholarship is awarded to the student obtaining the highest, but not less than 75 per cent., marks in Pathology and Bacteriology, provided that such student passes at the same examination in the subjects of Materia Medica and Practical Pharmacy. In the Final Examination the Scholarship is awarded to the candidate taking the first place in the examination—that is, obtaining the greatest aggregate number of marks—provided that in each of the subjects of Medicine, Surgery, and Midwifery he gains not less than 60 per cent. of the total available marks; (*j*) George Henry Marshall Scholarship of £10, awarded annually, for the encouragement of Research Work in Ophthalmology; and (*k*) Russell Memorial Prize, a prize of books, value about £2, awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University, shall pass the best examination in the subject of Nervous Diseases. The "Arthur Foxwell Memorial Medal" (Gold Medal for Medicine) and the "Sampson Gamgee Memorial Medal" (Gold Medal for Surgery) are awarded annually to the best candidates passing Final M.B., Ch.B. Examination in June in Medicine and Surgery respectively, provided that not less than 60 per cent. of marks is obtained (paper, oral, and clinical). The University Clinical Board awards Gold and Silver Medals on examinations in Medicine, Surgery, and Midwifery, respectively, in fourth and fifth years, open to all students.

Clinical Instruction.—The medical students of the University receive their clinical instruction by attending the amalgamated practice of the General Hospital and the Queen's Hospital under the direction of the University Clinical Board. Appointments are open to students varying from £40 to £200 a year.

BIRMINGHAM GENERAL HOSPITAL.—370 beds. Special wards for Children, Gynæcological, Ear and Throat, Venereal, Maternity, and Septic cases; special beds for Eye and Skin cases. Laboratories for Bacteriology and Morbid Histology. Separate rooms adjoin the medical and surgical wards for clinical pathology. Five operating theatres (one for out-patients), all designed and fitted on modern lines. In addition to clinical teaching given in the wards and out-patient department by the honorary staff, medical and surgical tutorial classes are held for senior and junior students. Clinical instruction in all the special departments, which include those for Radium, Electrotherapy, Electrocardiographic investigation, and Venereal Diseases. Post-graduate classes in every branch of medicine and surgery. The Jaffray Branch Hospital contains 56 beds.

QUEEN'S HOSPITAL.—224 beds.—Similar arrangements for clinical teaching are made here, and the material also is excellent. Ward and tutorial classes and post-graduate courses are regularly conducted by the staff, there are daily clinics in the out-patient department, while teaching duties are definitely assigned to the house physicians and house surgeons. There are also special departments for gynæcology and ophthalmology, dentistry, radiography, pathology, bacteriology, biochemistry, massage, electricity, whirlpool baths, and electrocardiograph.

BIRMINGHAM AND MIDLAND EYE HOSPITAL, Church-street, Birmingham.—115 beds. Students attending for a period of three months will be granted certificates which will qualify for the University and Conjoint Board examinations. Post-graduate courses are available on various subjects, when a sufficient number of graduates are present. A limited number of Non-Resident Clinical Assistants posts are available to qualified practitioners, particulars of which can be had on application to the General Superintendent.

Post-Graduate Instruction.—A "William Witherin Lectureship" has been established. A course (of courses) of lectures is given annually for post-graduates on subjects chosen from year to year. In 1928 a course on Industrial Disease will be given by Sir Thomas Legge. The Ingleby Lectures on some subject in connexion with Diseases of Women and Children are given annually by specially appointed lecturers. Post-graduate Courses of Clinical Demonstrations for General Practitioners are arranged annually (April to July) at the Birmingham General, Queen's, and Children's Hospitals.

UNIVERSITY OF LIVERPOOL.

The degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Doctor in Philosophy (Ph.D.), Master of Surgery (Ch.M.), Master of Hygiene (M.H.), and Master of Orthopædic Surgery (M.Ch.Orth.).

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates for the degrees of Bachelor of Medicine and of Surgery must have attained the age of 22 years on the day of graduation. At least two of the five years of medical study must have been passed in the University, and one year at least must have been passed in the University subsequently to the date of passing the First Examination. The other three years may be passed at any college or medical school recognised for this purpose by the University. Candidates must pass three examinations entitled respectively the First Examination, the Second Examination, and the Final Examination. The subjects

e First Examination are: (1) Chemistry; (2) ysics; (3) Biology (Zoology and Botany). The bjects of the Second Examination are (*a*) (1) atomy; (2) Physiology (including Physiological emistry and Histology); and (*b*) (3) Elementary cteriology, (4) Clinical Chemistry, (5) General thology. Candidates may present themselves in or (*b*) separately. The subjects for the Final amination are: (*a*) (1) Special Pathology and rbid Anatomy; (2) Forensic Medicine and Toxi- ogy; (3) Public Health; (4) Pharmacology and neral Therapeutics; (*b*) (5) Obstetrics and Diseases Women; (6) Surgery, Systematic, Clinical, erative and Practical, including Ophthalmology; Medicine, Systematic and Clinical, including Thera- utics, Mental Diseases, and Diseases of Children. ndidates may present themselves in Parts (*a*) and separately, but candidates must have completed e fifth year of medical study before taking rt (*b*).

Degrees of Doctor of Medicine and Master of Surgery. candidate will be admitted to the degree of ctor of Medicine or Master of Surgery unless he s previously received the Degrees of Bachelor of edicine and Bachelor of Surgery, and at least two ars have elapsed since he passed the examinations those degrees, or, in the case of the degree of ctor, unless, having obtained substantially equiva- nt degrees in an approved University, he has sub- quently spent two years in the University or in the nical School in the performance of research or the nduct of systematic clinical observations. Candi- tes for the degree of Doctor of Medicine are required present a thesis together with, if desired, published ginal work relative to medical science, and unless e thesis is of special merit to submit to an examina- n in medicine, or to a special written or oral amination on subjects connected with the thesis.

The University also awards a *Diploma in Medical diology and Electrology*—Part I., Physics: Part II., diology and Electrology. The parts may be taken one examination or separately.

Scholarships, Fellowships, and Prizes.—The follow- g are awarded: (*a*) Robert Gee Entrance Scholar- ip (Men), annually, of £40, tenable for four ars; (*b*) Lyon Jones Scholarship, No. 1, of 1 per annum, tenable for two years, Com- titive Examination among Junior Students in rst M.B. Subjects; (*c*) Lyon Jones Scholar- p, No. 2, of £21, Competitive Examination on sults of Professional Examination in Anatomy, ysiology, Elementary Bacteriology, Clinical Chem- ry, and General Pathology; (*d*) Derby Exhibition £15, Competitive Examination among Fourth- Fifth-year Students in Clinical Subjects, and (*e*) nical School Exhibition of £15 annually for Fourth- Fifth-year students; (*f*) University Scholarship £50 for one year, awarded on results of the Final art A) Examination for the degrees; (*g*) Holt Fellow- ips, Physiology and Pathology, of £150 each, for one ar; (*h*) Gee Fellowship, Anatomy, of £100, for e year; (*i*) John Rankin Fellowships in Anatomy, o, each of the value of £120, tenable for two years; Johnston Colonial Fellowship, Biochemistry, £100, for one year; (*k*) John W. Garrett Inter- tional Fellowship, Bacteriology, of £100, for one ar; (*l*) Thelwall Thomas Fellowship, Surgical thology, of £150, for one year; (*m*) Ethel Boyce llowship in Gynæcological Pathology, of £100, for e year; (*n*) Mary Birrell Davies Memorial Fund holarship, of the value of £60, tenable for four years, ered for competition in alternate years; open only women students who will have attained the age 19 on the first day of October next following the ard; (*o*) Rankin Exhibition in Practical Anatomy, £25, for one year; (*p*) Lady Jones Research llowship in Orthopædic Surgery, £200; (*q*) Samuels emorial Scholarships, three at £20; numerous izes and medals.

The Medical School.—All the laboratories and class- oms are situated close together, communicating with e another, and are made up of four large blocks of buildings which form one side of the College quad- rangle. There are the Johnston Laboratories for Experimental Medicine and Biochemistry; the Medical School for Anatomy, Surgery, Toxicology, and Ophthalmology; and the Thompson-Yates Laboratories for Physiology and Pathology. A new building for Tropical Medicine has been opened. Medical research has also been endowed with several new laboratories in which students can pursue research work after graduation.

Clinical Studies.—The Clinical School of the University consists of four general hospitals—the ROYAL INFIRMARY, the DAVID LEWIS NORTHERN HOSPITAL, the ROYAL SOUTHERN HOSPITAL, and the STANLEY HOSPITAL; and of six special hospitals—the Eye and Ear Infirmary, the Hospital for Women (with the Samaritan Hospital), Liverpool Maternity Hospital, the Royal Liverpool Children's Hospital, St. Paul's Eye Hospital, and St. George's Hospital for Skin Diseases. These hospitals contain in all a total of about 1445 beds. The organisation of these hospitals to form one teaching institution provides the medical student and the medical practitioner with a field for clinical education and study which is unrivalled in extent in the United Kingdom. All the hospitals are within easy access of the University. There are a large number of appointments to house physicianships and surgeon- ships both at the general and special hospitals which are open to qualified students of the school.

Public Health Department.—This is located in a separate building, in which full courses of instruction are given to students for the Diplomas and Degrees of the University and of other Examining Boards.

Prospectuses and further information may be had on application to the Dean of the Faculty of Medicine, University of Liverpool.

VICTORIA UNIVERSITY OF MANCHESTER.

Four degrees in Medicine and Surgery are conferred by the University—viz., Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.). A Diploma in Psychological Medicine, a Diploma in Public Health, and a Diploma in Bacteriology are awarded by examination to registered medical practitioners.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Before admission to the degree of M.B. or Ch.B. candidates are required to present certificates that they will have attained the age of 21 years on the day of graduation, and that they have pursued the courses of study required by the University Regulations during a period of not less than five and a half years subsequently to the date of their registration by the General Medical Council, two of such years having been passed in the University subsequently to the date of passing the first M.B. Examination.

The First Examination: (1) Chemistry and Physics; (2) Biology. Candidates must have attended during at least one year courses both of lectures and of laboratory work in each of the above-named subjects. The Examination is divided into two parts: Part 1, Inorganic and Elementary Organic Chemistry and Physics; Part 2, Biology. The candidates sit for these parts separately. The Second Examination: (1) Anatomy and Histology; (2) Physiology, including Physiological Chemistry. The Third Examination: (1) Pharmacology and Materia Medica; (2) Pathology. The Final Examination: (1) Medicine, Systematic and Clinical (including Mental Diseases and Diseases of Children); (2) Surgery, Systematic, Clinical, and Practical; (3) Obstetrics and Gynæcology (including Clinical and Practical); (4) Forensic Medicine (including an Oral Examination); (5) Hygiene and Preventive Medicine. The Final Examination is divided into two parts: Part I., Forensic Medicine, Hygiene and Preventive Medicine; Part II., Medicine, Surgery, Obstetrics and Gynæcology (Systematic, Clinical, and Oral). Candidates for the Second Part must complete the sixth year of medical study.

Degree of Doctor of Medicine.—Candidates are not eligible for the degree of Doctor of Medicine unless they have previously obtained the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. Candidates may elect either (1) to present an original dissertation; or (2) to undergo an examination. The dissertation must embody the results of personal observation or original research, either in some department of medicine or of some science directly relative to medicine. The examination, which will be written and practical, is in the Principles and Practice of Medicine, in Pathology, and in some other subject to be selected by the candidate.

Degree of Master of Surgery.—Candidates are not eligible for the degree of Master of Surgery unless they have previously obtained the degrees of Bachelor of Medicine and Bachelor of Surgery and at least one year has elapsed since they passed the examination for those degrees. The degree is conferred in the following branches: Surgery (Branch I.), Gynæcology (Branch II.), Ophthalmology (Branch III.), Laryngology, Otology, and Rhinology (Branch IV.).

Degrees of B.Sc. and M.Sc.—The ordinary degree of B.Sc. in the Schools of Anatomy and Physiology may be obtained by students in Medicine who in their third year of study for the degree of M.B., Ch.B. complete the additional courses in these subjects prescribed for this degree. Candidates for the Honours degree of B.Sc. in Anatomy or Physiology, who are students in Medicine, are required to attend courses in advanced Anatomy and Physiology for four terms after passing the Second Examination for the degrees of M.B., Ch.B. Graduates in science may proceed to the degree of M.Sc. by presentation of an approved thesis.

Scholarships, Fellowships, and Prizes.—The following are offered in connexion with medical study at the Victoria University:—Scholarships: Dreschfeld Entrance (triennial), £20; John Russell Medical Entrance, £45; Sam Gamble Entrance for Women; Graduate Entrance (fees up to 160 guineas); two Dauntesey Medical Junior, £50 each; Dauntesey Medical Senior, £50; Professor Tom Jones Exhibition in Anatomy, £25; Dickenson Trust Scholarships in Anatomy and Pathology; Platt Physiological, £90; Graduate Research Scholarship, £70; Dickenson Trust Travelling Scholarships in Medicine and Surgery; Ashby Memorial in Diseases of Children (triennial), £100; John Henry Agnew in Diseases of Children, £120. Fellowships: Leech Research, £70; Professor Tom Jones, Surgical, £105; Morrison Watson in Anatomy, £150; Delépine in Preventive Medicine (biennial), £300; Honorary Research Fellowships. Prizes: Sidney Renshaw in Physiology, £15; Turner Medical, £20; Dumville Surgical, £15; Knight Prize in Psychological Medicine, £50; Graduate Prizes, £5 each. There are many general entrance scholarships, in addition to those already mentioned, open for competition, the examinations for which are held in the month of May. Full particulars can be obtained from the Registrar.

The Medical School.—This school, largely extended in 1920, is provided with dissecting-rooms, X ray rooms, physiological laboratories, private laboratories, and work-rooms, besides lecture-rooms, museums, and general and departmental libraries. A special laboratory is equipped for experimental work on the central nervous system. In the pathological laboratories ample provision is made for the teaching of pathology and bacteriology and for the prosecution of original research. The Helen Swindells Laboratory is specially equipped for cancer research and investigation in general pathology. Ample facilities for investigation are provided in Anatomy, Physiology, and Materia Medica. In the public health department, which is lodged in a separate institute in York Place, near the Royal Infirmary, suitable laboratory accommodation is provided for the study of sanitary chemistry, physics, and practical bacteriology in the departments of chemistry and physics and in that of pathology.

Clinical Studies.—The clinical and practical departments of medical study are taught partly in the Medical School and partly in the Royal Infirmary and St. Mary's Hospitals for Women and Children, a fever hospital, a lunatic asylum, and a convalescent home, and other special hospitals. Medical and Surgical Clinical Classes are conducted in the Infirmary and separate instruction is afforded in the elements of Medical and Surgical Physical Diagnosis, in Obstetric Medicine, Ophthalmic Surgery, and Pathological Anatomy by the different members of the staff of the Medical School and Infirmary.

Post-graduate Studies.—Post-graduate Courses in Medicine and Surgery have been arranged for during 1927–28 as follows, in addition to those usually held at the various hospitals: 1. Whole-time intensive courses in (*a*) Medicine and Surgery, and (*b*) Obstetrics and Gynæcology. 2. Whole-time advanced courses in Diseases of the Digestive System. 3. Part-time afternoon courses in (*a*) Tuberculosis, and (*b*) Diseases of the Ear, Throat and Nose. 4. Clinical Assistantships. Syllabuses and other information may be had on application to the Dean of the Medical School, Manchester University.

MANCHESTER ROYAL INFIRMARY.—The Manchester Royal Infirmary is built on the pavilion system, near the University, and has accommodation for 668 patients (including 54 beds at the Central Branch). The medical side consists of four units, each unit having a testing-room for the scientific investigation of morbid products and a class-room. The surgical beds are also arranged in five units, each unit having its own operation theatre, with anæsthetising, recovery, sterilising, testing and apparatus rooms, and its own class-room attached. All of these units are occupied. In the education block is a large lecture theatre and a museum. In the same building is housed the X ray department, which has nine separate X ray outfits for different purposes and in which one large room is put aside specially for X ray demonstrations and teaching purposes. A large massage school is also connected with the department.

Associated with the Infirmary are: (1) the Convalescent Hospital at Cheadle, containing 132 beds; (2) the Royal Lunatic Hospital at Cheadle, accommodating with its branches 430 patients; and (3) the Central Branch in the City, which has now accommodation for 54 patients. The Associated Hospitals thus contain 1230 beds and are under the same management. Women students are admitted on the same terms as men.

Two Entrance Scholarships in Medicine of the value of £160 each are offered annually by the Council of the Manchester University and the Medical Board of the Manchester Royal Infirmary for proficiency in Arts and Science subjects respectively. Other scholarships and prizes are mentioned in the College syllabus. Numerous annual appointments and junior appointments may be held by those who have attended the practice of the Infirmary.

ROYAL MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, Gartside-street, Manchester, and Lytham St. Anne's.—The hospital contains 190 beds and is in the Convalescent Home, Lytham St. Anne's. The medical staff visit the hospital daily at 10 A.M. Clinical instruction is given by the medical staff at the Hospital and Dispensary. There is a new Massage and Electro-therapeutic Department. Four Clinical Assistants are appointed for periods of six months. In throwing open these appointments to qualified medical men and women the Board is actuated by the desire to aid those qualified medical men and women who wish to have opportunities for the further study of disease in children, or who wish to fit themselves for posts as Medical Officers to Children's Hospitals, to Child Welfare Centres, or for School Medical Officer appointments. There is an Orthopædic Department. Out-patients' day is on Tuesday at Gartside-street and a ward at Pendlebury is devoted to cases needing

erative treatment. Out-patients are seen daily at .M. at the Out-patient Department, Gartside-street, nchester. Secretary: Mr. W. M. Humphry.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN D CHILDREN, Park-place, Cheetham Hill-road, nchester.—The hospital contains 73 beds. Out-ients are seen daily from 8.30 to 12 A.M.

UNIVERSITY OF LEEDS.

Four degrees in Medicine and Surgery are con-red—viz.: Bachelor of Medicine and Bachelor of rgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), ster of Surgery (Ch.M.), also Degrees and Diplomas Dental Surgery and Diplomas in Public Health l in Psychological Medicine.

Degrees of Bachelor of Medicine and Bachelor of rgery.—Candidates for these degrees are required present certificates showing that they will have ained the age of 21 years on the day of graduation, l have attended courses approved by the University ending over not less than five years, two of such rs at least having been passed in the University, of which must be subsequent to the date of ssing the First Examination. Candidates must also isfy the examiners in the several subjects of the owing examinations, entitled respectively: the triculation Examination, or such other examination may have been recognised by the Joint Matricula-n Board in its stead; the First Examination; the ond Examination; and the Final Examination. e First Examination consists of: Part I., Physics d Inorganic Chemistry; Part II., Zoology and tany. Candidates will be allowed to pass the two rts separately. The Second Examination consists : Part I., Organic Chemistry; Part II., Materia dica and Practical Pharmacy; Part III., Anatomy, ysiology, and Pharmacology. Candidates will be owed to pass any parts separately, but Part I. must passed before Parts II. or III. The Final Examina-n consists of: Part I., Pathology and Bacteriology; rt II., Medicine, Surgery, Obstetrics, Gynæcology, l Clinical Pathology; Part III., Forensic Medicine, blic Health, and Therapeutics. Part I. may be ken at the end of the second clinical year, and rts II. and III. may be taken at the end of the third nical year, but not before the completion of the h year of medical study. If taken separately rt II. must be passed before Part III.

Degree of Doctor of Medicine.—Candidates are not gible for the degree of Doctor of Medicine or ster of Surgery unless they have previously received e degrees of Bachelor of Medicine and Bachelor of rgery of the University (or of Victoria prior to cember, 1904) and at least one year has elapsed ce they passed the examination for those degrees. ndidates for the degree of Doctor of Medicine e required to present a dissertation and, if the sertation be accepted, may be required to pass an amination. The first term commences on Oct. 1st. ospectus can be obtained from the Academic b-Dean.

Post-graduate work.—Practitioners wishing to attend firmary practice during short periods, or post-aduate classes held by members of the clinical ff, may do so on application to the Clinical Sub-an, from whom particulars may be obtained.

Clinical Studies.—The clinical studies are pursued ainly at the Leeds General Infirmary, which has commodation for 630 in-patients, including 88 beds branch hospitals in the country. Clinical teaching kes place daily in the wards, and Clinical lectures are ven in Medicine and Surgery by the Physicians and rgeons. There are Medical, Surgical, Ophthalmic, ural, Electro-therapeutic, and Radiographic Depart-nts, in each of which special instruction is imparted students. Gynæcological and Children's Depart-nts, together with Laryngeal, Venereal, and Skin nics, are in operation, and there is a special ward cases of nutritional disorders of children. Several luable prizes are given at the end of each session. Numerous appointments at the Infirmary are annually open to students after qualification. Further particulars may be obtained from the General Manager.

In addition to work in the General Infirmary, clinical instruction in obstetrics is given in the Leeds Maternity Hospital and in mental and infectious diseases in the Wakefield (W.R.) Mental Hospital and Leeds City Fever Hospital respectively.

UNIVERSITY OF SHEFFIELD.

The Degrees in the Faculty of Medicine are Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Doctor of Medicine (M.D.), and Master of Surgery (Ch.M.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.). There is also a Diploma of Licentiate in Dental Surgery. The courses and degrees in the Faculty of Medicine are open to men and women alike. Candidates must matriculate in the University or pass such other examination as may be recognised for this purpose by the University and sanctioned by the Joint Matriculation Board, and must pass also the further examination in Chemistry and Physics.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—A candidate must have attained the age of 22 years on the day of graduation and have pursued the courses of study required by the University regulations during a period of not less than five years subsequently to the date of his matriculation and the passing of the further examination in Chemistry and Physics, three of such years at least having been passed in the University, one at least being subsequent to the passing of the First Examination. The subjects of the First Examination are Chemistry, Physics, and Biology. The Intermediate B.Sc. Examination in these subjects will, on payment of the required additional fee, be accepted instead of this examination. Candidates must, after matriculation and the passing of the further examination in Physics and Chemistry, and registration as medical students, have attended courses of instruction (lectures and laboratory work) in chemistry, physics, and biology for one year each. The Second Examination: The subjects are Anatomy and Physiology. Candidates must have completed the second year of professional study. The Third Examination: The subjects are Pathology, Pharmacology, Anatomy, and Physiology. Candidates must have completed the Lent Term of the fourth year of professional study. The Final Examination: The subjects of the examination are: Part I., Forensic Medicine and Public Health; Part II., Medicine (including Mental Diseases and Diseases of Children), Surgery, Obstetrics (including Gynæcology). Candidates for Part I. must have completed the Michaelmas Term of the fifth year of professional study; candidates for Part II. must have completed the fifth year of professional study.

Degree of Doctor of Medicine.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the professor of medicine, and must pass an examination in the Principles and Practice of Medicine.

Degree of Master of Surgery.—Candidates must have taken the M.B., Ch.B. at least one year previously, and must since have held for not less than six months a surgical appointment in a public hospital.

The subjects of examination are Systematic, Clinical, and Operative Surgery, Surgical Anatomy, Surgical Pathology, and Bacteriology.

Scholarships.—At this University, in addition to six Edgar Allen scholarships of £125 a year for three years, holders of which can take the courses in the Faculty of Medicine, there are 11 scholarships tenable in the Faculty of Medicine. Full particulars as to curriculum, scholarships, and prizes, may be had on application to the Registrar or to the Dean of the Medical Faculty.

The Medical School.—The Medical Department occupies the entire north wing of the University

quadrangle. The various athletic and other students' societies are under the management of the Union Representative Council, elected annually. There are large and comfortable common rooms both for men and women students, and two Students' Unions, one for men and one for women. A refectory is open daily at the University where students may obtain meals and refreshments at moderate prices. The University journal, *Floreamus*, edited by a committee of staff and students, is published each term. The University Halls, "Oakholme," Clarkehouse-road; "Tapton Cliffe," Fulwood-road, and "Endcliffe House," Endcliffe Vale-road, are recognised by the Senate as halls of residence for women students; full particulars may be obtained from the tutor for women students. Stephenson Hall is a hall of residence for men students; particulars may be obtained from the Warden.

Clinical Studies.—The University is within easy reach of the various hospitals with which it is connected for clinical purposes.

The Sheffield Royal Infirmary, 502 beds, provides all the opportunities of a large general hospital with special departments for Skin and Ear. The Sheffield Royal Hospital, 316 beds, has special out-patient departments for Diseases of the Throat, Ear, Skin, Orthopædics, and Mental Diseases. The two institutions are amalgamated for the purposes of clinical practice, medical, surgical, and special. There are special departments for the treatment of Diseases of the Eye, with wards assigned to them, at both hospitals, and excellent junior appointments. The Jessop Hospital for Diseases of Women, with 93 beds, has also a Maternity department, with about 900 in-patients per annum and about 250 out-patient cases attended. The Children's Hospital has 60 beds. Special courses on Fevers are held at the City Fever Hospitals (690 beds) and on Mental Diseases at the South Yorkshire Mental Hospital (1800 beds). Every facility is afforded in the various laboratories for the prosecution of advanced studies and research.

UNIVERSITY OF BRISTOL.

In the Faculty of Medicine there are the following degrees:—Bachelor of Medicine and Bachelor of Surgery (M.B. and Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Dental Surgery (B.D.S.), and Master of Dental Surgery (M.D.S.). There are also the following diplomas: Diploma in Public Health (D.P.H.), Diploma in Dental Surgery (L.D.S.), and Diploma in Veterinary State Medicine.

All candidates for degrees in Medicine, Surgery, and Dentistry are required to pass an examination called the School Certificate Examination, or to pass such examination as may be regarded as equivalent by the Senate. All courses, degrees, and diplomas are open to men and women alike.

Degrees of Bachelor of Medicine and Bachelor of Surgery.—Candidates shall be not less than 21 years of age and shall have pursued the courses prescribed by University Regulations during not less than five years after passing the first examination in Chemistry and Physics, of which three shall have been passed in the University, and two of these three subsequent to passing the second examination. All candidates for the degrees of M.B., Ch.B., are required to satisfy the examiners in the several subjects of three examinations. The First Examination: The subjects of examination are: Chemistry (Inorganic), Physics, and Biology, the courses pursued being those for the time being approved for the intermediate part of the B.Sc. curriculum. This part of the curriculum shall extend over one year. (Candidates who have passed the Higher School Certificate approved by the Board of Education in these subjects will not be required to sit for the first examination and will be regarded as having completed one year of study.) The Second Examination: The subjects of examination are: Organic Chemistry and Elementary Anatomy (Part I.) and Advanced Anatomy and Physiology (Part II. Parts I. and II. may be passed separately or together. The Final Examination: The subjects of examination are: Materia Medica and Pharmacy, Pharmacology and Therapeutics, General Pathology, Morbid Anatomy, and Bacteriology (Part I.); Special Pathology, Forensic Medicine, Toxicology, and Public Health, Obstetrics (including Diseases of Women), Surgery (Systematic, Clinical, Practical, and Operative), Medicine (Systematic, Clinical, and Practical, including Mental Diseases) (Part II.). The subjects included in Part II. may be taken in two groups, viz., Group I., Surgery and Obstetrics; Group II., Medicine, Public Health, Special Pathology, Forensic Medicine, and Toxicology. Candidates may pass Parts I. and II. together, or separately, and the two groups of Part II. may be taken together or separately. Forensic Medicine and Toxicology may be taken with Part I., or with Group II. of Part II.

Degree of Doctor of Medicine.—Candidates shall be Bachelors of the University of not less than two years' standing as such and may elect either (1) to pass an examination in General Medicine, or (2) to pass an examination in State Medicine, or (3) to present a Dissertation. The candidate who elects to pass the examination in State Medicine must hold a diploma in Public Health of some University or College, and the candidate who elects to present a Dissertation may be examined in the subject thereof.

Degree of Master of Surgery.—Candidates shall be Bachelors of not less than two years as such, during which period they shall have attended the Surgical Practice of an institution approved for the purpose. They shall pass an examination in Surgical Anatomy, Pathology, and Bacteriology, and Operative, Clinical, and General Surgery, and present to the University a Dissertation on some subject of Surgery. The degree may be taken also in General Surgery, and a Special Subject—e.g., Oto-Rhino-Laryngology, Ophthalmology, and Gynæcology.

Clinical Studies.—The allied hospitals (BRISTOL ROYAL INFIRMARY and BRISTOL GENERAL HOSPITAL) have between them about 600 beds and extensive out-patient departments, special clinics for Diseases of Women and Children and those of the Eye, Throat and Ear, in addition to large and well-equipped departments for Dental work and large outdoor Maternity Departments.

At each of these institutions there are well-arranged pathological museums, post-mortem rooms, and laboratories for Morbid Anatomy. There are also laboratories for work in Clinical Pathology, Bacteriology, and Cytology, in which special instruction is given in these subjects. Departments are provided and well equipped for X ray work, both for diagnosis and treatment, the various forms of Electrical treatment, including High Frequency Currents, Electric Baths, Finsen Light treatment, and Massage.

The students of the school also attend the practice of the Royal Hospital for Sick Children and Women, containing 140 beds, and that of the Bristol Eye Hospital, with 40 beds. The total number of beds available for clinical instruction is therefore about 750.

There are numerous salaried junior appointments for residents who are graduates.

Scholarships and Prizes.—The following are awarded: The Ashworth Hallett Scholarship, value £45, open to women only; two Martin Memorial Pathological Scholarships of £10 each; the Tibbits Memorial Prize, value 9 guineas, for proficiency in practical surgery; the Committee's Gold and Silver Medals for fifth-year students for general proficiency; the Augustin Prichard Prize, value about 6 guineas, for proficiency in anatomy; the Henry Clark Prize, value 11 guineas, for proficiency in gynæcology; the Crosby Leonard Prize, value 7 guineas, for proficiency in surgery; the Suple Surgical Prize, a gold medal and 7 guineas; the Suple Medical Prize, a gold medal and 7 guineas; the Henry Marshall Prize, value £

dressers; the H. M. Clarke Scholarship, value for proficiency in surgery; the Sanders Scholar-, value £22 10*s*., for general proficiency; the ett-Roué Scholarship for proficiency in diseases he eye, ear, nose, and throat, value £14; Lady erfield Scholarship, value about 25 guineas; llis Siepman Prize, for proficiency in Diseases of dren, value £25.

ristol City Senior Scholarships and those offered he counties of Gloucestershire, Somerset, Wilts, Devon, are tenable in the University. Some of Fellowships awarded by the Colston Research ety for research in the University are allotted to Faculty of Medicine.

ost-graduate Study.—Qualified medical practi-ers may be appointed as clinical assistants for a od of one or more months. They may act as stants, if times permit, in more than one depart-t and in any of the hospitals during their period tudy. They will be entitled to the use of the cal laboratories and medical library, and have the t to attend in all departments, including opera-s, post-graduate and ordinary clinical demonstra-s, and post-mortem examinations. Demonstration ses with weekly lectures are held during May, , and July. All inquiries and applications for ission should be addressed to the Director of -graduate Studies (Clinical Section), Pathological artment, University of Bristol, who can be seen ny day by appointment.

urther information as to scholarships, curricula, fees can be obtained from the Dean of the Faculty edicine or the Registrar of the University.

UNIVERSITY OF WALES.

his University has, inter alia, the privilege of ting Degrees in Medicine, and Diplomas in Public lth and Tuberculous Diseases. Preliminary ses of study for the Degrees in Medicine may be ued at any of the constituent Colleges of the versity—viz., at Aberystwyth, Bangor, Cardiff, or nsea. The Welsh National School of Medicine ituated in Cardiff and is an integral part of University College of South Wales and mouthshire there.

niversity College of South Wales and Monmouth-e, Cardiff. Welsh National School of Medicine.—School is staffed on the Unit System, and its rses of Instruction are open to both men and nen students. Students can complete the whole heir curriculum in the School. The courses of uction qualify for the degrees in Medicine and gery of the University of Wales, and for the rees and Diplomas of other examining bodies. pital instruction is given at the Cardiff Royal rmary, at the City Lodge Hospital, and at other gnised institutions. The attention of students ut to matriculate is drawn to the entrance scholar-s offered for competition at the University College, iff, many of which may be held by medical ents. Full particulars of the examinations for e, which are held in April of each year, may be ined by application to the Registrar. Medical titioners wishing to prepare for the Diploma in lic Health or for the Tuberculous Diseases loma of the University of Wales can attend plete courses of instruction in the School. Pros-uses can be obtained on application to the Dean ne Faculty of Medicine, or to the Secretary, Welsh ional School of Medicine, Newport-road, Cardiff.

linical Instruction.—At the Cardiff Royal Infirmary nded 1837, 450 beds) there are out-patient artments for Dermatology, Diseases of Children, Dental Cases, and a Maternity Hospital. nsea General and Eye Hospital (316 beds). artments: Pathological Laboratory; Venereal ases Department; Ophthalmic; Ear, Nose and oat; Women; X Ray and Massage. Convalescent ne, 26 beds.

ENGLISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGE OF PHYSICIANS OF LONDON AND THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Under this heading we give the regulations for the examinations enjoined by the Conjoint Examining Board of the Royal Colleges of Physicians of London and Surgeons of England and of the Society of Apothecaries upon students desiring their respective diplomas of qualification. We do not give any list of schools recognised by these bodies as eligible to prepare students for their examinations beyond mentioning that all the schools which we have already described (under the heading of the Universities to which they are attached) are recognised as suitable places of instruction by the corporations granting medical diplomas. The courses of study at the principal colonial medical schools are also recognised as qualifying for the examinations of these corporations.

Students are required to pass a *Pre-Medical Examination* in Chemistry and Physics conducted by the Conjoint Examining Board before commencing the five years curriculum of professional study or some other examination recognised by the Board—namely, the examination in Chemistry and Physics for the degree in Medicine of any University recognised by the Board; a Pre-Medical Examination conducted by any of the Qualifying Bodies whose Degrees or Diplomas are registrable on the Medical Register; the Higher School Certificates of Oxford and Cambridge Universities, and the Oxford and Cambridge Schools Examination Board; the Higher Certificates of London, Bristol, Durham Universities, the Joint Matriculation Board of the Northern Universities, and the Central Welsh Board Higher Certificate. A candidate must enter for Chemistry and Physics together, and he will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other subject. He will be admitted to the examination on producing evidence of having passed the required Preliminary Examination in General Education and of having received instruction during 180 hours in Chemistry and 120 hours in Physics to the satisfaction of his teachers. These courses may be commenced or attended before the required Preliminary Examination in General Education is passed. The examination is partly written, partly oral, and partly practical. A candidate rejected in one or both subjects of the examination will not be admitted to re-examination until after the lapse of a period of not less than three months, and he must produce evidence of further instruction in the subject or subjects of failure. The fee for the examination is £3 3*s*., for re-examination in Chemistry £2 2*s*., and for re-examination in Physics £1 1*s*.

There are two Professional examinations called the *First* and *Final Examinations*. The courses of study for these examinations may be commenced before the Pre-Medical examination in Chemistry and Physics or some equivalent examination has been passed, provided that three terms of study are completed after the examination has been passed.

The subjects of the First Professional Examination are: Section I. (*a*) Anatomy, including Histology and Embryology. (*b*) Physiology, including Biochemistry. Section II. Pharmacology, Practical Pharmacy, and Materia Medica. A candidate must have attended at a recognised Medical School courses of instruction in Anatomy, including Embryology, during five terms, during which he must have dissected the whole body, courses of instruction in Physiology, including General Biology, Biochemistry and Biophysics during five terms, courses of instruction in Pharmacology, Practical Pharmacy, and Materia Medica. A candidate may present himself

for the two Sections together or separately, but he must take parts (*a*) and (*b*) of Section I. together until he has passed in one or both parts, but a candidate will not be allowed to pass in one part unless he obtains at the same time at least half the number of marks required to pass in the other part.

Section II. of the examination may be passed at any time before the candidate enters for the Final Professional Examination. The fee for the First Professional Examination is £10 10*s*., for re-examination after rejection in Section I. £6 6*s*., for re-examination after rejection in either part of Section I. £3 3*s*., for re-examination after rejection in Section II. £3 3*s*. A candidate who produces satisfactory evidence of having passed an examination in the subjects of Section I. or of either part of Section I. and of Section II. in the examination for the degree in Medicine conducted at a University recognised by the Board will be exempted from further examination in such subjects.

Final Professional Examination.—The subjects of the Final Professional Examination are: Section I. Pathology (including Morbid Anatomy, Morbid Histology, and Clinical Pathology), and Bacteriology. Section II. Part I. Medicine, including Medical Anatomy, Forensic Medicine and Public Health. Part II. Surgery, including Surgical Anatomy and the use of Surgical Appliances. Part III. Midwifery and Gynæcology. The examination is partly written, partly practical, partly clinical, and partly oral. A candidate may take Sections I. and II. and the three parts of Section II. of the Final Examination separately or may take the whole examination together. He will be required to produce the certificates required by the regulations before being admitted to the respective parts of the examination. A candidate who produces evidence of having passed an examination for a degree in medicine in the subjects of Pathology and Bacteriology at a University recognised by the Board is exempted from Section I. The fee for admission to Section I. is £4 4*s*.; for admission to Section II., Part I., £10 10*s*.; Part II., £10 10*s*.; Part III., £6 6*s*.; and the re-examination fees are respectively £3 3*s*., £6 6*s*., £6 6*s*., and £4 4*s*.

Students of recognised universities in England, Scotland, and Ireland, who have passed examinations for a degree in Medicine at their universities in the subjects of the First Examination of the Examining Board, may enter for a part of the Final Examination at the expiration of two years from the date of passing in Anatomy and Physiology on production of the required certificates, but they must complete 33 months of clinical study before examination.

Members of certain recognised Indian, Colonial, and Foreign universities who have passed examinations for the Degree of Doctor or Bachelor of Medicine or Surgery in the subjects of the First and Second Examinations of the Examining Board under the old Regulations, or of the First Examination and Section I. of the Final Examination under the new Regulations, may present themselves for the Final Examination under special conditions. The Board also grants Diplomas in Public Health, in Psychological Medicine, in Ophthalmic Medicine and Surgery, in Tropical Medicine and Hygiene, and in Laryngology and Otology. Candidates must hold a Medical qualification registrable in the United Kingdom or be Graduates in Medicine of a recognised Indian, Colonial, or Foreign University. Particulars and conditions of admission to all examinations, fees, &c., may be obtained from the Secretary of the Examining Board, Examination Hall, Queen-square, Bloomsbury, London, W.C. 1.

ROYAL COLLEGE OF PHYSICIANS OF LONDON:
THE MEMBERSHIP AND FELLOWSHIP.

The College confers two separate diplomas—the *Fellowship*, a purely honorary distinction, and the *Membership*, obtained by examination.

Membership.—The age for admission to this diploma, it will be noticed, has been changed from 25 to 23 years. The alteration in the by-law of t College is designed to enable men who have j finished house appointments to sit for an examinat for which their recent clinical experience has exac fitted them. The candidate must either have pass the examinations for the licence of the College, else be a registered medical practitioner who h obtained the degree of Doctor or Bachelor of Medic at a University recognised by the Censors Boa The examination is directed partly to patholo and partly to the practice of medicine. Credit also given to candidates who show a knowledge Latin, Greek, French, or German. Further inform tion may be obtained from the Registrar at t College. The fee for admission as a Member of t College is 40 guineas, except when the candidate membership is a licentiate of the College, in wh case the fee already paid for the licence deducted from the 40 guineas. The fee for t examination is 8 guineas, which is reckoned part of the fee for admission in the case success.

Fellowship.—The *Fellows* are selected annua from the ranks of the *Members* by the Comitia of College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND:
THE FELLOWSHIP.

The Royal College of Surgeons of England con its diploma of Fellow upon a few distinguished pers in an honorary capacity. Two Members of l standing may also be elected to the Fellows annually. But the bulk of the Fellows obtain diploma as the result of examination.

Fellowship.—The examination for the Fellowshi divided into two parts—viz., the First Examinat and the Second Examination. The subjects of First Examination are Anatomy and Physiology, those of the Second Examination are Surgery, includ Surgical Anatomy and Pathology. The examinati are partly written and partly vivâ voce, and incl the examination of patients and the performance operations on the dead body. The First Exami tion will in future years be held in June December and the Second Examination in May November.

The fees for examination are: First Examinati first admission 8 guineas, and for each readmiss 5 guineas. Second Examination, each admiss 12 guineas. The fee payable on admission to Fellowship by Members is 10 guineas and by n Members 30 guineas, in addition to examination f

A Member of the College is admissible to the F Examination at any time after receiving his Diplo of Membership. A candidate who is not a Membe admissible after passing the First Professional Exa nations of the English Conjoint Board in Anato and Physiology, or the equivalent examination in University, on the production of certificates attendance upon prescribed courses.

A Member of the College is admissible to the Sec Examination at any time after having passed First Examination, on producing evidence of hav been engaged not less than six years in the st (or study and practice) of the profession.

A candidate who is not a Member of the Col must possess the registrable surgical and med degrees of universities recognised by the Council must have been engaged in the study (or study practice) of the profession for not less than four y subsequent to the date of obtaining the recogn qualification, one year of which shall have been sp in attendance on the Surgical Practice of a recogn hospital. The diploma of Fellow is not confe upon successful candidates until they have attai the age of 25 years.

The Regulations may be obtained on applicatio the Director of Examinations, Examination H Queen-square, Bloomsbury, London, W.C. 1.

SOCIETY OF APOTHECARIES OF LONDON.

The Primary examination is held quarterly. rt I. includes Chemistry, Chemical Physics; Prac- al Chemistry; Materia Medica and Pharmacy. rt II. includes Anatomy, Physiology, and Histo- gy. This examination cannot be passed before the mpletion of twelve months' Practical Anatomy th Demonstrations, and these subjects cannot be ken separately except in the event of the candidate ving previously passed in one.

The Final examination is held monthly except in ptember. Part I. Clinical Surgery: Principles and actice of Surgery, Surgical Pathology, and Surgical natomy, Operative Manipulation, Instruments, and pliances. Part II. Clinical Medicine: Medicine, armacology, Pathology, and Morbid Histology; rensic Medicine, Hygiene, Theory and Practice of ccination; and Mental Diseases. Part III. includes dwifery, Gynæcology, and Diseases of New-born ildren and the Use of Obstetric Instruments.

The course of study for the *Final examination* ludes attendance on the Surgical and Medical actice, with Post-mortem Examinations, at a spital connected with a medical school for a period three winter and three summer sessions, including ourse of Practical Midwifery, with attendance on 20 dwifery cases. The course of medical study must tend over five years, and the office of dresser or nical clerk must be held at a hospital or other titution recognised by the Society. Three years ust elapse after a candidate has passed the examina- n in Anatomy and Physiology before he can mplete the Final examination.

Evidence shall also be given of practical instruction Infectious Diseases and in Mental Diseases (at a natic asylum or in the wards of an institution con- ining a special ward set apart for the treatment of ental diseases), and in any two of the following bjects: Ophthalmic Surgery, Laryngology with inology and Otology, Dermatology, and Diseases Children. Candidates intending to present them- ves for examination are required to give 14 days' tice. The fee for the Licence is 20 guineas. Female ndidates are admitted to examinations. The exami- tion offices are open from 10 A.M. to 4 P.M.; on turdays from 10 A.M. to 1 P.M. All letters should be dressed to the Secretary, Court of Examiners, ciety of Apothecaries of London, Blackfriars, E.C. 4.

ETROPOLITAN CENTRES AFFORDING POST-GRADUATE FACILITIES.

In addition to the medical schools already dealt th, the following institutions provide, in certain cumstances, for the needs of the medical student his curriculum and for the post-graduate student quiring special forms of instruction and opportunities clinical observation. Many of the institutions recognised by the English Conjoint Examining ard as a place of study for the fifth year of the rriculum.

In each case further information concerning the actice of the hospital, the fees, and the appointments n be obtained from the Secretary of the Hospital the Secretary of the Medical Committee.

Certain hospitals or groups of hospitals are working conjunction with the Fellowship of Medicine d Post-graduate Medical Association. This associa- n, which has its offices in the Buildings of the Royal ciety of Medicine, 1, Wimpole-street, W. 1, provides ensive courses in general and special branches of edicine and surgery, which are arranged at short ervals, and also courses in special subjects the ture of which are indicated by the groups of spitals coöperating in its teaching work. Member- ip of the Fellowship is open to all qualified medical actitioners, the subscription fee being 10 shillings r annum. Full information regarding the courses study can be obtained from the Secretary. The Post-graduate Medical Journal, the official organ of the Fellowship, is published monthly at 1, Bedford-street, Strand, W.C.

SPECIAL DIPLOMAS.

Special diplomas in public health, tropical, psychological, and ophthalmic medicine, medical radiology and electrology, laryngology, otology, and tuberculosis are now granted in proof of intensive work along the different lines indicated. Of these, the Diploma in Public Health, being regulated by the General Medical Council, is registrable. Appointments to and promotion in the various Services are largely dependent on the possession of a particular diploma, and each syllabus of the special courses available at the institutions which follow, either with or without association with the Fellowship of Medicine, is planned to afford the necessary instruction.

The special instruction given at the Bethlem Royal Hospital and the Maudsley Hospital, in connexion with the Diploma in Psychological Medicine is referred to later.

HOSPITALS OF THE METROPOLITAN ASYLUMS BOARD.—These are divided into infectious hospitals and institutions for the treatment of tuberculosis and of venereal diseases. In the metropolis and the near vicinity there are 18 of these institutions at which medical instruction can be received in clinical and administrative work especially in connexion with the candidature for Diplomas in Public Health. The Metropolitan Asylums Board announces a course of lectures and demonstrations (three months) on clinical practice and in hospital administration, to be given at the North-eastern Hospital, St. Ann's-road, Tottenham, N. 15, by the medical superintendent, on Mondays and Wednesdays at 4.45 P.M., and alternate Saturdays at 11 A.M., beginning Monday, 3rd October, 1927. This course complies with the requirements of the revised D.P.H. regulations of the General Medical Council. Application for further information should be made to the Clerk to the Metropolitan Asylums Board, Victoria Embankment, London, E.C. 4.

SEAMEN'S HOSPITAL SOCIETY.—Although a qualification in tropical medicine has not been made registrable by statute, a diploma is regarded as indispensable for appointments in the Colonial Medical Service and similar positions abroad. Systematic instruction for these diplomas is given at the London School of Hygiene and Tropical Medicine, 23, Endsleigh-gardens, Euston-road, N.W. 1. The society possesses four hospitals—the Dreadnought Hospital at Greenwich, 250 beds, and the Branch Hospital in the Royal Victoria and Albert Docks, E., 53 beds; the Hospital for Tropical Diseases, Endsleigh-gardens, London, N.W. 1, 58 beds; Tilbury Hospital, Tilbury Docks, Essex, 65 beds; King George's Sanatorium for Sailors, Bramshott, Hants, 80 beds, and the Angas Home, Cudham, 36 beds. Total, 542 beds. It has also a Dispensary in the East India Dock-road from which patients are transferred to the hospitals. In conjunction with the Fellowship of Medicine arrangements have been made for a course of operative surgery. The London School of Hygiene and Tropical Medicine is making a valuable provision for the study of advanced bacteriology at 6, Gordon-square, W.C., in October next. Well in advance of the needs to be met when the arrangements are complete for the Diploma of Bacteriology, to be instituted by the University of London.

A similar course of instruction, is given at the Incorporated Liverpool School of Tropical Medicine.

GENERAL PRACTICE.

ROYAL NORTHERN GROUP OF HOSPITALS.—The Royal Northern Hospital, Holloway, London, N. 7, is the main institution of the Royal Northern Group of Hospitals, which includes the Royal Chest Hospital, City-road, E.C., Hospital of Recovery, Southgate, and the Reckitt Convalescent Home, Clacton-on-Sea.

The total number of beds in the group is 394. Besides the honorary staff there are six anæsthetists, three pathologists, resident medical officer, resident house physician, three resident house surgeons, two resident casualty officers, and one resident obstetric surgeon. The large rectangular and circular wards, each of which contains 25 beds, the children's ward for children under 5 years of age, the observation wards in the new Casualty Department, the two operation theatres, and out-patient department are designed with a view of offering the greatest facilities for clinical work. The Special Departments include the following: Fracture, genito-urinary and neurological, physico-therapeutic, pathological (under a director of clinical pathology), tuberculosis, and venereal diseases. Patients are removed to the Hospital of Recovery by ambulance a few days after operation. Demonstrations are given daily in the wards and out-patient departments. Clinical assistants (qualified), clinical clerks, and pathological clerks are appointed in the general and special departments and may receive certificates at the end of their terms of office. A new maternity department has been opened, and the light department has been re-equipped.

Post-Graduate Facilities.—Weekly lectures by members of the hon. medical and surgical staff are free to all medical practitioners. Special classes and demonstrations are being arranged for post-graduates. They include instruction in General Medicine and Surgery, and also lectures and demonstrations in special subjects at the Royal Northern and Royal Chest Hospitals.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N. 15.—This hospital is in the midst of a densely populated neighbourhood and contains medical, surgical, gynæcological, and children's wards, having 200 beds. There are special departments for gynæcological cases, diseases of the eye, ear, throat, and nose, skin diseases, plastic surgery, medical electricity, radiography, and dentistry. Operations are performed every afternoon of the week (except Saturday) at 2.30 P.M. Clinical instruction, ordinarily including laboratory classes, and lectures are given in the wards and out-patient departments, laboratories, and lecture hall in connexion with the North-East London Post-Graduate College attached. There are five resident medical officers, and clinical assistants are appointed under certain conditions. Special intensive post-graduate courses are also held at intervals throughout the year. Further particulars in regard to the hospital may be obtained from Dr. S. C. Shanks, Secretary to the Medical Committee, 87, Harley-street, W. 1; or from Dr. A. J. Whiting, Dean of the College, 19A, Cavendish-square, W. 1.

WEST LONDON HOSPITAL, Hammersmith, W.—This hospital has 210 beds. Attached to the hospital is the West London Post-Graduate College. The practice of the hospital is reserved exclusively for qualified men. Instruction is given in the medical and surgical out-patient rooms and demonstrations are given in the wards. Clinical assistantships are obtainable in the various general and special out-patient departments. Special classes are held in Diseases of the Throat and Nose, Skin, and Eye, and in Gynæcology, Medical Electricity, Operative Surgery, Bacteriology, Anæsthetics, Intestinal Surgery, Medical and Surgical Diseases of Children, Blood and Urine, Clinical Microscopy, Cystoscopy, Venereal Diseases, and Operative Ophthalmology, Radiography, X Ray Therapy. The accommodation for post-graduates consists of a lecture room, together with reading, writing, and class rooms. The hospital has a fully equipped pathological laboratory, at which instruction is given in elementary bacteriology. The certificate of the hospital is accepted by the Admiralty, War Office, Colonial Office, and India Office in cases of study leave. Further information can be obtained on application to the Dean, Sir Henry Simson, at the Hospital. Secretary of the Post-Graduate College Mr. C. Cole, and of the Hospital Mr. H. A. Madge.

LONDON TEMPERANCE HOSPITAL, Hampstead-roa N.W. (Established 1873; Incorporated 1917.)—T hospital contains 135 beds. The medical a surgical practice of the hospital is open to studen and practitioners. Operations: Monday, 1.30 P.M Tuesday, 2.30 P.M., Wednesday, 9 A.M. and 1 P.M Thursday, 8 A.M., Friday, 10 A.M. and 3 P.M., a Saturday, 9 A.M. New Out-patient Departments f special diseases have been opened: Neurolog Diseases of the Stomach and Disorders of Digesti Diseases of Women, Genito-urinary Diseases, Disea of the Rectum, and Dermatology.

HAMPSTEAD GENERAL AND NORTH-WEST LOND HOSPITAL.—In-patient Department: Haverstock H N.W.; Out-patient Department: Bayham-stre Camden Town (130 beds—viz., 102 free, 8 isolation a observation, &c., and 20 paying or contributory). Ser Hampstead and the populous districts of Kentish To and Camden Town. The out-patients, with the exce tion of Hampstead casualty and emergency cas attend exclusively at the Out-patients' Departme Bayham-street, Camden Town. Further particul from the Secretary at the hospital. Post-gradua work is in connexion with the Fellowship Medicine.

QUEEN MARY'S HOSPITAL, Stratford.—This hospi has developed from the West Ham and East General Hospital. It has 200 beds and minist to a very poor public. Founded as a dispens in 1861, and developing into a hospital in 1890, stea extensions have been made during this centu A Royal Charter was obtained in 1917, and the hospi has become a valuable charity with a full medi staff of physicians and surgeons, and specialists gynæcology, obstetrics, ophthalmological surge radiology, and dental surgery. The Fellowship Medicine and Post-graduate Medical Association mal frequent use of the opportunities here offered.

NEUROLOGY.

THE NATIONAL HOSPITAL, QUEEN-SQUARE, W.C. The hospital, with the Convalescent Home at E Finchley and branch at Clapham Park, contains 2 beds and cots. The out-patient physicians attend eve Monday, Tuesday, Thursday, and Friday at 2 P.M. and the physicians daily. Clinical clerks a appointed under physicians and clinical assistants out-patient physicians. Post-graduate Courses Lectures and Demonstrations are held three tim every year, usually commencing in January, May, a October, and lasting eight weeks. Special Courses Neurological Ophthalmology, Neuropathology, a the Anatomy and Physiology of the Nervous Syst are given. The Pathological Laboratory is availa for special work under the Pathologist.

WEST END HOSPITAL FOR NERVOUS DISEASES. The out-patient department is in Welbeck-stre W.; the in-patient department is in Gloucester Ga Regent's Park, N.W., and contains 80 be Completely equipped with pathological departm and other special departments, the hospital offers facilities for instruction in neurological subjects. series of clinical demonstrations, apart from t general practice of the hospital, is held regularly ea session, and the hospital is coöperating with t Fellowship of Medicine in the programme of spec post-graduate teaching organised by the Associati Appointments as clinical assistants in the out-pati department are open to registered medical prac tioners. The Savill Memorial Prize (value £15) a Medal are offered biennially for competition amc post-graduate students who have attended at t hospital.

HOSPITAL FOR EPILEPSY AND PARALYSIS, & Maida Vale, W. (85 beds).—Both in-patient and o patient departments of this hospital are open free students as well as to medical graduates. Te out-patient department is open every week-d except Saturday at 2 P.M.

HEART AND LUNGS.

IOSPITAL FOR CONSUMPTION AND DISEASES OF THE ST, Brompton.—The hospital contains 333 beds. Sanatorium at Frimley contains 100 beds and beds for paying patients. Six house physicians de in the hospital for a term of six months; their ies include attendance in the out-patient depart-t. An additional month may be spent at the atorium. Pupils are admitted to the practice of hospital. Clinical Demonstrations are given ughout the year by members of the medical staff. ical assistants are appointed to the physicians the out-patient department and clinical clerks he physicians in the wards. The medical practice he hospital is recognised by the English Conjoint rd and also by the University of London, the thecaries' Society, and the Army and Navy and ian Medical Boards. The hospital is open to t-graduates and students. During the month vious to each conjoint examination the teaching be as far as possible for students about to enter the final examination. The hospital practice is n to post-graduate students.

IOUNT VERNON HOSPITAL (INCORPORATED) FOR BERCULOSIS AND DISEASES OF THE LUNGS AND ART, Northwood; CENTRAL OUT-PATIENT DEPART-NT, Fitzroy-square, W.—The hospital contains beds, Medical and Surgical; 50 beds reserved for dren requiring surgical aid. Clinical Demonstra-is are given by the visiting Medical Staff at the pital at Northwood. New departments for artificial t treatment have been opened both in the hospital the out-patient departments. Clinical assistants appointed to physicians in the wards and in the -patient department.

ITY OF LONDON HOSPITAL FOR DISEASES OF HEART AND LUNGS, Victoria Park, E. 2.—berculosis Dispensary (Boroughs of Bethnal en and part Hackney). Special Depart-nts: Surgical, Laryngological, Radiological, hological, Electro-Cardiographic. Assistants are ointed to the Clinics, and a limited number of earch workers to the Pathological Department. in-patient staff visit generally in the afternoon; -patients at 2 P.M. The post-graduate students admitted on payment of fees which entitle m to attendance at clinics, post-mortem demonstra-is, and operations. Special demonstration and ure courses are provided, and a club room. duates desiring Assistantships in any department uld apply to the head of the Special Department.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, stmoreland-street, London, W. (founded 1857).—e practice of the hospital, both in the wards and -patient department, is open daily to post-graduates others. Systematic courses of instruction, with ures and clinical demonstrations, are arranged ing the winter and summer sessions; in addition intensive course, of a fortnight's duration, takes ce in January, July, and October of each year. The pital is fully equipped with all the modern instru-nts for the investigation of the diseases of the diovascular system, and facilities exist for those uiring practical instruction in Electro-cardiography, Rays, and other graphic methods. Clinical Assistants the Out-patient Department are appointed from e to time.

DISEASES OF WOMEN AND CHILDREN.

HOSPITAL FOR SICK CHILDREN, Great Ormond-eet, W.C. 1. (contains 268 beds).—The practice is en to students of both sexes who have completed r years of medical study and also to qualified dical men and women. The medical staff are ognised by the University of London as teachers Diseases of Children. Arrangements have also en made with University College Hospital and the ndon School of Medicine for Women for the routine mission of their students of both sexes to clerkships l dresserships in the wards. Appointments are de every three months to eight medical clerkships, which are open to students of the hospital. Clinical instruction is given daily by members of the visiting staff. Clinical Clerks are appointed once a month. In the pathological department, facilities are afforded to post-graduates for obtaining theoretical and practical instruction in Clinical Pathology and Bacteriology, and in Medical Biochemistry in the Pathological and Biochemical Laboratories. Courses of eight to ten Lecture-Demonstrations are given at weekly intervals twice a year in both subjects (Clinical Pathology and Bacteriology, and Bio-chemistry.) Time spent in clerking and dressing is recognised by the Universities of London, Oxford, and Cambridge, as well as by the English Conjoint Board as part of the final curriculum. These appointments are open to students of all recog-nised medical schools. In addition, special lectures in post-graduate work are held throughout each term of the year, as well as routine post-graduate instruction daily.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL (formerly QUEEN CHARLOTTE'S LYING-IN HOSPITAL) AND MIDWIFERY TRAINING SCHOOL, Marylebone-road, N.W.—This hospital receives about 2000 patients annually, besides having a large out-patient department. Medical pupils are received at all times of the year. Pupils have unusual opportunities of seeing obstetric complications and operative midwifery, on account of the very large number of primiparous cases—nearly one-half of the total admissions. Clinical instruction is given on the more important cases which present themselves. They also receive valuable instruction in the Antenatal Department, where over 4000 patients attend yearly. Special Lecture-demonstrations are given by members of the staff. Certificates of attendance at this hospital are recognised by all the Universities, Colleges, and licens-ing bodies. Pupil midwives and maternity nurses are received and specially trained. A Residential College provides accommodation for students and qualified practitioners (both men and women), and is opposite the hospital, with which it is in telephonic communi-cation. Arrangements have been made for Medical Students to receive the preliminary instruction in Practical Midwifery recommended by the General Medical Council.

ROYAL WATERLOO HOSPITAL FOR CHILDREN AND WOMEN, Waterloo Bridge-road, S.E.—This hospital, founded at the date indicated by its title, has recently undergone considerable extensions, and has now 130 beds, while the latest buildings include a nurses' home and a new operation theatre. It has a full staff of surgeons, physicians, and gynæcologists, and also special departments. A new orthopædic depart-ment is in use, and a new nursing home is in occupation, although it has not been formally opened.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—130 beds and a large out-patient department; the home at Broadstairs has 50 beds. A Private Nursing Home for children is now open at 29, Tite-street, in connexion with and adjacent to the hospital. Patients must be under the care of a consultant of one of the hospitals of London, and the question of payment for his fees is arranged between him and the child's parents. Application for admission should be made to the Secretary.

QUEEN'S HOSPITAL FOR CHILDREN (*late North-Eastern Hospital for Children*), Hackney-road, Bethnal Green, E.—For the sick children of the poor under 14 years of age. 134 beds in London and 36 at the seaside branch, "Little Folks" Home, Bexhill.—Special departments in Ear, Nose, Throat, Skin and Eye, and Dentistry. A radiologist attends four times weekly. There are massage and light depart-ments, and a special whooping-cough physician. The practice of the hospital is open to students by arrangement with the medical staff, and post-graduate instruction in children's diseases, lectures and demon-strations are given at times notified by the Fellowship of Medicine.

PADDINGTON GREEN CHILDREN'S HOSPITAL (46 beds).—This is a small hospital with a large out-patient department and a full staff, with eye, ear, skin, and dental departments. The facilities which it offers for observation of clinical practice are used by the Fellowship of Medicine.

HOSPITAL FOR WOMEN, Soho-square, W. (80 beds).—The teaching is available for post-graduates only, in limited numbers. Operations take place daily at 2 o'clock except on Saturdays. The X ray department is supplied with the latest installation both for diagnosis and treatment, and experience can also be gained in the treatment of malignant disease by means of radium. Incorporated is the London School of Gynæcology, comprising attendance in out-patient department, operating theatre, clinical lectures, and X ray treatment.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W. (70 beds).—Qualified practitioners are admitted as clinical assistants to both the in- and out-patient departments. Full particulars in regard to fees may be obtained on application to the Secretary to the Medical Committee at the hospital.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Glamis-road, Shadwell, E.—136 cots. Clinical instruction is given by the physicians and surgeons to the hospital to students in the fifth year of the curriculum. Two clinical clerkships for qualified or unqualified students are open every three months subject to reappointment if desired. Clinical assistants (qualified men only) are from time to time appointed in the out-patient department. Any additional information may be obtained on applying to the Secretary.

CHELSEA HOSPITAL FOR WOMEN, Arthur-street, Kensington, S.W.—This hospital has about 100 beds and is making every effort to maintain 50 more. A certain number of the beds are reserved for paying patients, and there is a convalescent home of 30 beds at St. Leonards. There is a large out-patient department where the patients are seen at a nominal payment.

THE EVELINA HOSPITAL, Southwark (76 cots), and THE BELGRAVE HOSPITAL, Clapham-road, also give facilities for the attendance of out-patient practice.

OPHTHALMOLOGY.

ROYAL LONDON OPHTHALMIC HOSPITAL (Moorfields, 1804–1899), City-road, E.C. 138 beds.—The attendance at Moorfields Eye Hospital is now very large. Operations are performed daily from 10 A.M. to 1 P.M., and four surgeons attend on each day. Students are admitted to the practice of the hospital, and special courses of instruction are given, which extend over a period of five months, by members of the Surgical Staff, beginning in October and March. A composition fee entitles students to a perpetual ticket, and will admit them once to all the lectures and classes and to the examination for the hospital's full certificate. A special course is also held in the preliminary subjects (Anatomy, Physiology, and Optics) for the various diplomas in Ophthalmology. The fee for this course is 12 guineas. Students of the hospital are eligible for the offices of house surgeon or clinical and junior assistants. Junior assistants are appointed every three months.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street (next door to Charing Cross Hospital), Strand, W.C.—42 beds. The practice of the hospital is open to both men and women practitioners and students. Clinical evenings, at which interesting cases are shown and discussed, are held at intervals during the year and are open to all practitioners. In addition to the ordinary clinical instruction, a systematic course of Lectures and Practical Classes commences in October and May. Lectures in this course are given daily (except on Saturday) at 4.30 P.M., including all subjects required by candidates for the D.O.M.S., R.C.P. & S. Eng., Part II., and practical instruction is given in Operative Surgery and Ophthal Pathology and Bacteriology. A corneal microsc has been purchased and instruction in the Mi copy of the Living Eye can now be obtain A composition fee provides a perpetual ticket attendance at classes except Operative Surgery Pathology. Students of the hospital are elig for appointment as house surgeon, assistant ho surgeon, refraction assistant, and senior or ju clinical assistant.

ROYAL EYE HOSPITAL, St. George's-circus, Sou wark, S.E.—There are 40 beds and 2 cots. Clin instruction is given to students and post-gradu daily at 2.30 P.M., and Lectures, Demonstrati and Laboratory Classes are arranged in preparation examinations in Ophthalmology. Apparatus been installed for the Microscopy of the Liv Eye. Post-graduate students are eligible for appo ment as Clinical Assistants and as Refraction Offic

CENTRAL LONDON OPHTHALMIC HOSPITAL, Ju street, St. Pancras, W.C.—This hospital has 40 b and clinical teaching is given daily. Classes instruction in the use of the ophthalmoscope, w demonstrations on cases, and also classes on ot subjects, to meet the requirements of the Conj Board for the D.O.M.S., and of the University London for the M.S. in Ophthalmology, are gi during the winter months, commencing in Octo This school is recognised as a teaching institution the Universities of London and Oxford, as as the English Conjoint Board. It receive portion of the pupils of the University Col Hospital for the purposes of ophthalmic train The Pathological and Bacteriological Laborato have been rendered available for the use of ophthalmic surgeons who desire to send specim for examination. A small fee is charged for a rep A Clinical Demonstration is held by members of staff at the Central London Ophthalmic Hospita 5 P.M. on the first Tuesday of every month. Stud of Medicine and Medical Practitioners are admit without fee.

GENITO-URINARY AND VENEREAL DISEASES.

LONDON LOCK HOSPITAL AND HOME (Foun 1746).—In the Institution at Harrow-road, W., th are 202 beds. In the Male Department and O patient Department in Dean-street, Soho, W., th are 40 beds. Male patients are seen at 91, Dean-st on Mondays and Tuesdays from 1 to 2 P.M., from 6 to 8 P.M.; on Wednesdays from 6 to 8 P. on Wednesdays at 1 P.M. (female patien on Thursdays, 1 P.M. (male out-patients), 5 (female patients); on Fridays from 5 to 7 (male patients); and on Saturdays from 2 to 4 (males). Intravenous injections are given at ev clinic. Female clinics are held at 283, Harrow-r Paddington, on Mondays at 10 A.M., Tuesd Wednesdays, and Thursdays at 2 to 3 P.M., Saturdays at 2 P.M. The new female out-pati department is open all day long from 9 A.M. 8 P.M. Irrigations for males are given daily 8 to 10 P.M. For females Mondays, Tuesd Wednesdays, Thursdays, and Fridays at 11 to 1 P.M., at 91, Dean-street. The Hospital linked up with the Fellowship of Medicine; spe courses of lectures are held in February, May, November each year, and application for tick should be made direct to the Secretary of Fellowship. Only a limited number of practition and students are permitted to attend the Fem Lock Hospital, and application should first be m to Major Corbett (Dean) at the Male Lock Hospi between the hours of 11 A.M. and 5 P.M., or to Secretary, at 283, Harrow-road, W.

ST. MARK'S HOSPITAL FOR CANCER, FISTULA, A OTHER DISEASES OF THE RECTUM, City-road, E (Founded 1835.) (54 beds.)—For men and wom Operations are performed on Mondays, Wednesd and Thursdays at 2.30 P.M. Medical practitioners students are invited to the operations and to

ical instruction in the wards and in the out-patient partment. Two fortnightly courses held during r in coöperation with the Fellowship of Medicine.

T. PETER'S HOSPITAL FOR STONE AND OTHER INARY DISEASES, Henrietta-street, Covent Garden. ablished 1860. 30 beds for men and 2 beds for nen and children. The X ray department is gnostic only. Loan of radium salts for research k by British Empire Cancer Campaign 1925. lical practitioners and students are invited to clinical instructions which are given in the wards out-patient department daily, excepting that the y out-patient clinic open to medical women is t held at 2 P.M. Fridays for women and children, to the operations in the theatre on Mondays at) P.M., and Wednesdays and Fridays at 2 P.M. t-graduate Courses of Lectures are arranged through Fellowship of Medicine from time to time.

LL SAINTS HOSPITAL FOR GENITO-URINARY EASES.—The in-patient department, 30 beds, is Finchley-road, and the terms of admission are or by payment according to means. The out-ent department in the Vauxhall Bridge-road vides clinical instruction through the Fellowship Medicine.

ORTHOPÆDICS.

OYAL NATIONAL ORTHOPÆDIC HOSPITAL, Great tland-street, W. (200 beds.)—This institution good example of the fusion of small and scattered vities for the creation of an effective whole. three orthopædic hospitals of the metropolis combined for the formation of this central itution at the instance of the King's Hospital d, with the result that the grants from this d and the income from subscriptions can now used to far better purpose and with economy. hospital has also been approved by the Ministry Health for the treatment of tuberculosis, the nexion between orthopædics and the therapeutics tired in many forms of tuberculosis having become ous. Country branch at Brockley Hill, Stanmore.

EAR, NOSE, AND THROAT.

ENTRAL LONDON THROAT, NOSE, AND EAR PITAL, Gray's Inn-road, W.C.—The hospital is n daily to all qualified medical practitioners on entation of their visiting cards. Demonstrations he cases and clinical instruction are given daily he chief surgeon of each clinic. Lectures each lay at 4 P.M. An intensive Course of Lectures Operative Surgery Class is given twice yearly—May and October. Consultations on interesting s take place on the fourth Wednesday in each th at 4 P.M. Clinical Assistants are appointed are expected to hold office for at least three ths. They are required to attend twice weekly .30 o'clock for the afternoon, and at 4.30 o'clock the evening clinics.

OSPITAL FOR DISEASES OF THE THROAT, Golden-are, W. (with which is amalgamated the London oat Hospital, Great Portland-street).—Clinical ruction in the diagnosis and treatment of disease ven daily in the out-patient department from 2 to M., and on Tuesdays and Fridays from 6.30 to M. There is an annual out-patient attendance of 60,000. Minor operations are performed on sdays, Wednesdays, and Thursdays at 9.30 A.M. hospital has been partially closed for some time ng to rebuilding operations, but new wards and atient operating theatres have been opened ntly, and the hospital now contains 80 beds. ctitioners and medical students are admitted to the tice of the hospital, and from amongst the students or clinical assistants are appointed periodically.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL.—The hospital is in Fitzroy-square, W. Out-patient Department is opened daily (Saturdays excepted) at 2.30 P.M. to all medical practitioners senior students for acquiring clinical instruction and technical knowledge. Operations upon in-patients are performed on Tuesdays, Wednesdays, and Thursdays at 10 A.M. Clinical Assistants are appointed as vacancies occur, and have responsible duties.

SKIN.

LONDON SCHOOL OF DERMATOLOGY, ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.—In-patient Department (34 beds) at 262, Uxbridge-road, W. Out-patient Clinics are held daily at 2 and 6 P.M. (Saturdays 2 P.M. only), when demonstrations are given on the cases presenting themselves. The Chesterfield Lectures, constituting a systematic course in dermatology, are given on Tuesdays and Thursdays at 5 P.M., from October to March, by the hon. medical staff of St. John's Hospital and the physicians in charge of the Dermatological Departments of the London Teaching Hospitals. The lectures are free to those attending the practice of the hospital and to registered medical students. At the end of the course an examination is held for the Chesterfield Medal in Dermatology, and is open to those who have attended three-quarters of the lectures. The Electrical Department is open daily from 2 to 4 P.M., except on Thursdays and Saturdays. Laboratory Courses in the Pathology and Bacteriology of the Skin can be arranged.

THE LONDON SKIN HOSPITAL (Fitzroy-square), and the HOSPITAL FOR DISEASES OF THE SKIN (Blackfriars-road), admit students to their practice, which is practically among out-patients.

PROVINCIAL CENTRES AFFORDING POST-GRADUATE FACILITIES.

Nearly every hospital of a general character in the country having more than 150 beds falls within this category, and certain of them have already been noticed in connexion with the universities to which their clinical practice is attached.

The following alphabetical list includes the provincial hospitals which are recognised by the English Conjoint Board for a part of the required training in medical and surgical practice through clerkships and dresserships.

BATH ROYAL UNITED HOSPITAL, Bath.—This hospital contains 212 beds, 72 of which are situated in Combe Park, Bath, and are for *paying patients* only, and possesses X Ray, Massage, Bacteriological Departments, a Pathological Laboratory, and a fine library. Secretary: Mr. J. M. Sheppard. V.D. Clinics are held on Tuesdays (for women), and on Fridays and Saturdays (for men), from 5 to 6.30 P.M., and Ear, Throat, and Nose Clinics on Thursdays, at 4 P.M.

BEDFORD COUNTY HOSPITAL, Bedford.—This hospital has 111 beds, including 15 beds in the paying wards, X Ray and Pathological Departments. There is in connexion with the institution a convalescent home (20 beds) at Aspley Heath, nr. Woburn Sands. The hospital is approved by the University of London for the purposes of the M.D. and M.S. Examinations. Secretary: Mr. Beauchamp Wadmore.

BRADFORD ROYAL INFIRMARY, Bradford. — This hospital contains 215 beds. The material passing through the surgical wards consists of major operations, chiefly abdominal, and gynæcological work, and affords excellent facilities for either students or post-graduates. There are special clinics for Orthopædic cases. Plans for a new hospital of 360 beds have been adopted, and building operations will be commenced as soon as funds will allow.

COVENTRY AND WARWICKSHIRE HOSPITAL, Coventry (established 1840).—This hospital contains 243 beds. Special clinics are held for diseases of the Eyes, Ears, Nose, and Throat; Gynæcology; X Ray and Electrical Treatment; also V.D. Clinics. A Pathological Department has recently been started. Clinical students are received, and there are paying wards.

DERBYSHIRE ROYAL INFIRMARY, Derby.—This hospital contains 330 beds. It was founded in 1810, and was entirely rebuilt and enlarged 1892–1915 on the most modern lines at a cost of over £144,000. There is a separate ophthalmic block of 33 beds, a separate children's block of 34 beds, and a special department for gynæcological cases. There are four resident house surgeons, a resident house physician, and an assistant house surgeon and casualty officer. There are also well-equipped orthopædic, X ray, electrical, and venereal diseases departments. Registered medical students are admitted to witness the medical and surgical practice on payment of such fees as may be determined.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION, Gloucester.—This hospital, which was granted the title of "Royal" on the occasion of King Edward VII.'s visit to Gloucester in the year 1909, has 140 beds. Secretary: F. J. Symons. An electrical and massage department has been established and venereal clinic opened. Also ear, nose, and throat department, X ray department, dental department, and pathological laboratory.

HULL ROYAL INFIRMARY, Hull.—This hospital contains 267 beds, and since its establishment in 1782 until the erection of the circular wards in 1907 has undergone steady additions and improvements, including up-to-date Ophthalmic, Radiological, Nose, Throat and Ear, Dental, V.D., Violet Rays and Pathological Departments. A branch convalescent home at Withernsea, with accommodation for 30 patients, is a special feature of the charity.

KENT AND CANTERBURY GENERAL HOSPITAL, Canterbury.—The hospital contains 116 beds. Pupils of the staff are admitted to the practice of the hospital. Operations four days of the week. There is an Ophthalmic Department with two wards for in-patients, a Venereal Clinic, an Orthopædic Department, &c. Secretary, Mr. F. P. Carroll.

LEICESTER ROYAL INFIRMARY, Leicester.—At the General Infirmary there are 333 beds, and at the Children's Hospital in connexion 70; venereal diseases, 17; total 420 beds. A reconstruction scheme has been carried out, and £250,000 spent on bringing the accommodation of the institution to a modern standard of efficiency. This scheme has included the provision of two modern operating theatres, two new wings, and self-contained out-patients' department. The Children's Hospital has been reconstructed and enlarged by the addition of a third ward at a cost of £14,500. Open-air balconies on all three floors are a feature. A central sterilising department has been provided. Pathological Laboratories and post-mortem rooms were rebuilt at a cost of £11,000, also an orthopædic out-patient department at a cost of £9500, £5000 of which was provided by the Freemasons of the province as their war memorial. The Nurses' Home has recently undergone enlargement by 60 bedrooms, and now provides for 160 nurses and staff. The 150th anniversary of the Institution has recently passed and a sum of £100,000 was raised in commemoration. Funds are being raised for the foundation of a City University, and a splendid site was presented by the late Mr. T. Fielding Johnson, J.P., an ex-chairman of the Royal Infirmary. There are ten resident salaried medical officers at the Infirmary—viz., four house surgeons, two house physicians, two anæsthetists, and two dressers. Most of the posts are filled half-yearly and afford exceptional opportunities for post-graduate experience and senior students. Dressers are given an honorarium. A post-graduate course of lectures is arranged annually by the Leicester Medical Association and also clinical classes are held for graduates preparing for M.D. and M.R.C.P. New accommodation for resident medical officers has been erected.

A private hospital has been presented to the City by Mr. Thomas Fielding Johnson, J.P., Treasurer, Royal Infirmary, son of the donor of the University site. This gift comprises three large dwelling ho on an admirable site, which have been reconstru and re-equipped as a private hospital for the recep of paying patients.

NORFOLK AND NORWICH HOSPITAL, Norwich.—' hospital has at present 325 beds. There is a conv cent home at Cromer. Students are admitted to practice of the hospital for a fee of £5 5s. for months. Secretary: Mr. Frank Inch.

NORTHAMPTON GENERAL HOSPITAL, Northamp Two new wings were opened in 1904 and the buildings entirely renovated and rearranged. 1926 a new Isolation block of 20 beds was ope The number of beds is 221. Non-resident pu receive and have every opportunity of acquirin practical knowledge of their profession. The fe £10 10s. Pupils can be received at any time. T is an up-to-date Pathological Laboratory; X Ray and Therapeutic Department and V. D. Cli

NORTH STAFFORDSHIRE ROYAL INFIRMARY, Ha Hill, Stoke-on-Trent.—The New Infirmary, ope in 1869, is built on the pavilion plan, has accomm tion for about 304 patients, including Childr wards, a Bacteriological and Pathological departm and a department for the treatment of Disease the Eye, X Ray and Electrical department (inclu Ultra-Violet Ray Lamps); a department for treatment of Diseases of the Ear, Nose, Throat, an Orthopædic department, and Vene Diseases clinics; so that there are excellent facil for acquiring a practical knowledge of the profess During the last six years the sum of £35,000 has b spent on new buildings and alterations. A Out-patient department, costing £12,000, a Children's ward of 30 beds, a new Patholog department, and a second large Operation The are amongst the structural improvements alre completed. The whole institution is now equip in a thoroughly up-to-date manner. An Elec cardiograph has been recently installed. Secret and House Governor: Mr. W. Stevenson.

NOTTINGHAM GENERAL HOSPITAL.—There are this hospital 317 beds available for medical surgical patients, and 45 beds are in the detac branch known as "The Cedars" Convales Hospital, Woodthorpe. The Medical and Surg Staffs consist of 2 Honorary Consulting Physici 2 Honorary Consulting Surgeons, 1 Honorary C sulting Physician in Venereal Diseases, 3 Hono Physicians, 4 Honorary Surgeons, 2 Hono Assistant Physicians, 2 Honorary Assistant Surge 2 Honorary Aural Surgeons, 1 Honorary Dermat gist, 2 Honorary Anæsthetists, 1 Honorary Surg Dentist, 1 Honorary Medical Officer in Charge X Ray and Electro-therapeutic department, 1 Pathologist. The Resident Medical Staff consist 2 House Physicians, 4 House Surgeons, 1 Aural H Surgeon, and 1 Casualty Officer. The special dep ments are the Ear, Nose and Throat, Skin, Der Massage and Exercise, X ray, Orthopædic, Elec therapeutic. House Governor and Secretary: P. M. MacColl.

ROYAL BERKSHIRE HOSPITAL, Reading.—This pital, which contains 220 beds, was enlarged in 1 and includes an Out-patient Department, a Casu Department, an X Ray Department, Electro-th peutic and Massage Department, an Orthop Department, a V.D. Clinic, a Laboratory, an Theatre, Eye Wards, and Motor and Horse am lances. The hospital is approved by the Gen Nursing Council as a Training School for Nu Post-Graduate Lectures are given.

ROYAL DEVON AND EXETER HOSPITAL, Exete The hospital contains 225 beds (including spe children's wards) and has a good library, muse post-mortem room, and pathological laborat Attendance on the practice of this hospital qual for all the examining boards. There is also Private Nursing Staff attached to the hospital.

iculars as to fees, &c., apply to the Matron. A wing was added in 1897 and the "Victory" for the treatment of discharged disabled soldiers sailors completed and opened in 1922. Arrangets may be made by which gentlemen in tice desiring to increase their qualifications may the use of the museum and library and other ities and by which students may attend midry. A new Operating Theatre was opened in 1906 gift of Mrs. Nosworthy of Dawlish, Devon). Electrical Treatment Department (the gift of M. A. Sanders) was opened in 1907 by Lady kworth-King. This department is now enlarged neet the ever-increasing work, and now forms of the most important sections of the hospital. epartment was opened in 1917 for the treatment enito-urinary diseases; there are three sessions week, two for men at 3 P.M. and 7 P.M., and one women at 3 P.M.

OYAL HANTS COUNTY HOSPITAL, Winchester.—hospital has 158 civilian beds. Secretary: Mr. bert Maslen.

OYAL HOSPITAL, Portsmouth.—The number of is 180. There are X Ray and Massage artments.

OYAL SALOP INFIRMARY, Shrewsbury.—This hosl has 130 beds. In-patients, 1572; out-patients, ; out-patients' attendances, 16,978; accidents casualties, 2496; dental cases, 344. Secretary: Alfred Sugden. A New Wing for the reception Women and Children, capable of ultimately mmodating some 40 patients, is now being erected.

OYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL, champton.—This hospital contains 130 beds, with y facility for clinical instruction.

OYAL SUSSEX COUNTY HOSPITAL, Brighton (225 s).—This hospital affords ample facilities for lents, possessing a large out-patient department, uding Ophthalmic, Dental, Dermatological, Gynæ gical, X Ray, and Orthopædic sections, and a well-ointed clinical research and bacteriological depart-nt. The hospital does not take resident pupils, out-pupils may attend the practice of the pital for any period not exceeding two years, payment in advance of a fee, not exceeding guineas, as the Board of Management shall direct.

ALISBURY GENERAL INFIRMARY, Salisbury.—This pital contains 142 beds. Maternity and antenatal ophthalmic wards; maternity and child welfare ic.

OUTH DEVON AND EAST CORNWALL HOSPITAL, mouth.—This hospital has 198 beds (including for venereal diseases in a separate building). cial departments include Pathological, X Ray, p-Therapy, Cardiographic, Ultra-Violet Rays, tro-Therapeutic, and Orthopædic; also medical surgical out-patients. Pensioners are received n-patients, and are also treated as out-patients.

TAFFORDSHIRE GENERAL INFIRMARY, Stafford ablished 1766).—This hospital has 87 beds.

VEST OF ENGLAND EYE INFIRMARY, Exeter.—peds. Students of the Exeter Hospital can attend practice of the Eye Infirmary. A ward is set le for newly-born babies suffering from infectious diseases. Mothers with babies are accommodated.

VOLVERHAMPTON AND STAFFORDSHIRE HOSPITAL, lverhampton (210 beds).—Special departments for ldren, Infectious cases, Gynæcology, Ear, Throat, Nose Diseases, Electrotherapeutic and X rays, ificial Sunlight, Venereal Disease, Pathological oratory, Dentistry, and Electro-cardiographic tallation. There is an excellent library. The resi-t officers are a resident surgical officer, resident dical officer, and two house surgeons. Pupils are wed to witness the whole of the practice of the pital and to be present at operations and have ry opportunity of acquiring a practical knowledge heir profession. A course of Practical Pharmacy is given by the dispenser. Fees on application. Applications should be made to the Honorary Secretary of the Medical Committee.

WORCESTER GENERAL INFIRMARY, Worcester.—This hospital has 132 beds. Pupils are taken by members of the Honorary Medical and Surgical Staff. New X Ray and Electrical and Wolfram Arc Light, Ear, Nose and Throat, and Orthopædic Departments have been erected and are now in use. Additional accommodation for the Honorary Staff and Out-patients and also an Outdoor Shelter in connexion with the Children's Ward have been built as a memorial to King Edward VII., and fire-escape staircases erected.

YORK COUNTY HOSPITAL, York.—This hospital contains 170 beds. There are balconies for outdoor treatment, two installations of X ray apparatus, electrotherapeutic and massage department, and clinical laboratory. A Venereal Diseases Clinic is held.

The hospitals vary much in size and scope, and obviously offer, for reasons of geography, many separate appeals, so that no detailed information upon any particular points in reference to any particular institution would be of service to any large group of students. It is unnecessary to point out to the general practitioners in the neighbourhood the advantages to be obtained from the post-graduate facilities offered to them by the hospital in their midst, and it is gratifying to know that a far wider use is being made of these facilities than was formerly the case.

Medical students completing their curriculum by attendance at authorised courses in these hospitals must ascertain, by communication with the Secretary, information concerning fees and other details.

PHARMACEUTICAL SOCIETY.

SCHOOL OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN (recognised by the UNIVERSITY OF LONDON).—The Pharmaceutical Society conducts examinations for registration as (*a*) Chemist and Druggist and (*b*) Pharmaceutical Chemist. For registration as Chemist and Druggist the candidate must pass (i) the Preliminary Scientific Examination (subjects Chemistry, Physics, and Botany); and (ii) the Chemist and Druggist Qualifying Examination (subjects Pharmacognosy, Pharmacy, Pharmaceutical Chemistry, and Forensic Pharmacy). Fee for each examination, 6 guineas; for each subsequent examination after failure, 4 and 6 guineas respectively. The advanced or Major Examination (for registration as Pharmaceutical Chemist) includes Botany, Chemistry, Physics, Practical Chemistry, and Materia Medica. Fee, 3 guineas. The last Major Examination will be held in July, 1928. The Pharmaceutical Chemist Qualifying Examination (for registration as Pharmaceutical Chemist) includes Botany, Chemistry, Pharmacognosy, Pharmacy, and Forensic Pharmacy. Candidates must have passed the Preliminary Scientific Examination. Fee, 12 guineas: for each subsequent examination after failure, 6 guineas. Courses of Instruction are given for the Chemist and Druggist Qualifying Examination, and (two years' course) for the Pharmaceutical Chemist Qualifying Examination in conjunction with University College.

An Intercollegiate, two years' course for the Final Examination for the degree of B.Pharm. of the University of London is also given in conjunction with University College. Medical students are admitted to the lectures and laboratory work in any or all the courses. Certificates of instruction in the School are received by the Conjoint Board of the Royal Colleges and by the University of London. Graduates in Science may carry out the research work necessary for the thesis for the Ph.D. of the University of London in the Society's Research Laboratories. Application for admission to the school, or for further information, may be made to the Dean, Prof. Greenish, 17, Bloomsbury-square, London, W.C. 1.

II.—SCOTLAND.

THE UNIVERSITIES.

UNIVERSITY OF EDINBURGH.

Four Degrees in Medicine and Surgery are conferred by the University of Edinburgh—viz., *M.B.*, *Ch.B.*, *M.D.*, and *Ch.M.* The degree of *Ch.B.*, cannot be conferred on any person who does not at the same time obtain both degrees, and no one is admitted to the degrees who has not been engaged in Medical and Surgical study for five years.

Candidates for the degrees of M.B. and Ch.B. must have attended for at least three academic years the medical and surgical practice either of the Royal Infirmary, Edinburgh, or of a general hospital elsewhere which accommodates not fewer than 80 patients and possesses a distinct staff of physicians and surgeons. They must have attended courses of instruction in Clinical Surgery and Clinical Medicine each of nine months, and courses of instruction in all the subsidiary subjects. They must have attended a course of instruction in Clinical and Practical Midwifery and have personally conducted 12 cases of labour.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations have effect:—Three of the five years of medical study must be spent in the University of Edinburgh. The remaining two years may be spent in any University of the United Kingdom, or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teacher as may be recognised for the purpose by the University Court.

Women are admitted to graduation in medicine under the same conditions as men.

Bachelors of Medicine and *Bachelors of Surgery* may proceed to the degrees of *Doctor of Medicine* and *Master of Surgery* after they have spent one year in the medical or surgical wards respectively of a hospital, or the Military or Naval Medical Services, or in scientific work bearing directly on their profession, or two years in practice. In each case an examination must be passed and a thesis submitted for approval of the Faculty.

Post-Graduate Instruction.—The University takes part in the Courses given under the auspices of the Edinburgh Post-Graduate Courses in Medicine. In the departments of the Faculty of Medicine provision is made for research by students of graduate standing. In the University laboratories facilities will be provided for candidates for the Degree of Ph.D. whose applications to engage in research have been accepted by the Senatus.

In connexion with the University and Royal Colleges Post-Graduate Instruction is given each year, chiefly in the Summer Vacation (July–September). Special Courses are arranged for, and particulars may be had on application to the Hon. Secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh.

The University of Edinburgh is especially rich in scholarships and prizes in medical subjects.

Full particulars concerning these, as well as concerning the fees at different stages, can be obtained from the Dean of the Medical Faculty.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, Edinburgh.—The number of students varies much in the classes and subjects. It is within the limit to say that about 1000 students avail themselves each session of the opportunity of attending the school. The lectures qualify for the University of Edinburgh and other Universities, the Royal Colleges of Physicians and Surgeons of London, Edinburgh, and Dublin, the Faculty of Physicians and Surgeons of Glasgow, and other Medical and Surgical and Pu Boards. Special courses of instruction for de students are also included in the curriculum of h school.

The practical classes and laboratories will open n the lectures commence on Oct. 4th.

In accordance with the statutes of the Universit Edinburgh one-half of the qualifying classes requ for graduation may be attended in this school. h regulations require that the fee for any class t e for graduation in Edinburgh shall be the sam that for the corresponding class in the Univer The whole education required for gradua at the University of London may be taken in h school.

Post-graduate Courses are conducted in conjunc with the University.

Further particulars regarding the school, also calendar (price 6*d.*) may be had on application to Dean of the School, Edinburgh.

ROYAL INFIRMARY, Edinburgh.—994 beds 42 cots for children. The clinical work of Edinburgh student is done at the Royal Infirm Courses of Clinical Medicine and Surgery are g by the physicians and surgeons to male and fe students. Special instruction is given on Dis of Women, Physical Diagnosis, Diseases of Skin, Diseases of the Eye, the Ear, the Lar and the Teeth. Separate wards are devote Venereal Diseases, Diseases of Women, Disease the Eye, the Ear, Throat and Nose, and the S and also to cases of Incidental Delirium or Insa There is also a large and complete Radiolo Department. Post-mortem examinations are c ducted in the anatomical theatre by the patholo and his assistants, who also give practical instru in Pathological Anatomy and Histology.

The appointments are: 1. Resident physi and surgeons are appointed and live in the house of charge. The appointment is for six months, may be renewed at the end of that period by sp recommendation. 2. Non-resident house physi and surgeons and clinical assistants are appointe six months. The appointment may be renewed like period by special recommendation. 3. Clerks dressers are appointed by the physicians and surg These appointments are open to all students junior practitioners holding hospital tickets. Assistants in the Pathological Department appointed by the pathologist.

Facilities are given in connexion with the l graduate Courses arranged by the Edinburgh Un sity and the two Royal Colleges jointly.

ROYAL HOSPITAL FOR SICK CHILDREN, Scie road, Edinburgh.—120 beds, and is fitted with e modern improvement. A fully equipped out-pa department (medical and surgical) is condu daily. Systematic courses of instruction, which qu for graduation in the Edinburgh University elsewhere, are given thrice throughout the yea the staff. Each course consists of 50 meetings combines medicine and surgery. Post-grad Courses of Lectures are held during the sum vacation. Full particulars can be obtained fro Registrar at the hospital.

EYE, EAR, AND THROAT INFIRMARY OF E BURGH (with which is incorporated the Edinb Eye Dispensary), 6, Cambridge-street, Lothian-roa Clinical Lectures and Instruction are given in institution, which is open at 1 o'clock daily for door patients for Eye Diseases; Mondays, Thurs and Saturdays at 12 noon, and Tuesdays and Fri at 4 P.M. for outdoor Ear, Nose, and Throat Pati Patients whose diseases require operations or e care are accommodated in the house (10 b Practical Ophthalmoscopic Classes may be arran and Clinical Assistants are appointed from tim

A post-graduate course in Diseases of the Ear, , and Throat is held each academic term, com- cing in May, October and January, and continuing six weeks. The next course commences in ber. The class meets at 5 P.M. on Tuesdays Fridays, and the instruction, which is practical, pplemented by lantern demonstrations. Full iculars from the Secretary, 32, Charlotte-square.

UNIVERSITY OF GLASGOW.

he University of Glasgow is both a teaching and a ee-granting body, but admits to graduation only idates whose preliminary examination and course tudy conform to its own regulations. Within in limits instruction given by recognised medical ols and teachers may be accepted, but not less one-half of the subjects other than clinical must aken in this or some other recognised university, at least two years of the course must be taken in gow University. Seven degrees, open both to men women, are conferred: *M.B.* and *Ch.B.* (always ointly), *M.D.* and *Ch.M.*; *B.Sc.* in Public Health; . in Public Health; *B.Sc.* in Pharmacy; and). in the Faculty of Medicine. A Diploma in ic Health (*D.P.H.*) is also granted.

l information as regards the extent and standard he Preliminary Examination may be obtained by ication to the Secretary, Scottish Universities ance Board, 81, North-street, St. Andrews.

r the degrees of M.B. and Ch.B. a curriculum of years is required. The candidate must attend ourse or courses of instruction in each he following subjects of study, extending not less than the number of terms specified ach case, and including such class exami- ns as may be prescribed in connexion with several courses:—Chemistry (including Organic nistry), two terms; with Practical Chemistry, term; Physics (with practical work), one term; ny (with practical work), one term; Zoology practical work), one term; Anatomy and tical Anatomy, five terms; Physiology and tical Physiology, three terms; Materia Medica Therapeutics (together or separately), each ect, one term; Pathology and Practical Patho- three terms; Medical Jurisprudence and Public th (together or separately), each subject, one ; Midwifery and Diseases peculiar to Women to Infants, two terms; Surgery, two terms; cine, two terms. Candidates must attend for ast three years the Medical and Surgical Practice recognised hospital accommodating at least atients and having a distinct staff of physicians surgeons. At least nine months' hospital attend- is required on both Clinical Surgery and Clinical cine with nine months more of general hospital tice; the student must have acted for six ths as clerk in medical and dresser in surgical ls, and must have had six months' outdoor tice; he must also have attended a course of tal Diseases and of Practical Pharmacy (25 ings), must have been properly instructed in ination at a public vaccination station, and have attended at least 20 cases of labour the Practice of a Lying-in Hospital. The rsity also requires further study in various al subjects.

here are four Professional Examinations, the first prising Botany, Zoology, Physics, and Chemistry; second comprising Anatomy and Physiology; hird comprising Materia Medica and Therapeutics Pathology; and the fourth or final, comprising ical Jurisprudence and Public Health, Surgery Clinical Surgery, Practice of Medicine and ical Medicine, and Midwifery and the Diseases liar to Women and to Infants.

he degrees of M.D. (*Doctor of Medicine*) *and Ch.M.* *ster of Surgery*) are granted to candidates, not r 24 years of age, who have previously obtained the double bachelorship on completing examinations, in Clinical Medicine for M.D. and in Surgical Anatomy, operations on the dead body, and Clinical Surgery for Ch.M. The higher degree of Doctor of Philosophy (Ph.D.) is also conferred in the Faculty of Medicine. Candidates must already have obtained a degree (or equivalent diploma) from an approved University or College and must prosecute a course of special study or research for two or three years and given evidence of satisfactory progress. A thesis must be presented for approval by the Senate on the recommendation of a Special Committee. The candidate may be required to undergo an oral or other examination on the subject matter of the thesis. Post-graduate Medical Teaching is available under the auspices of Glasgow Post-Graduate Medical Association. This Association is representative of practically all the Teaching Institutions in Glasgow. Weekly demonstrations for practitioners are given throughout the winter and spring, and comprehensive courses of instruction during the summer and autumn. There is a General Medical and Surgical Course, during the last two weeks of August and the first two weeks of September. This is a whole-time course and includes most of the subjects of interest to the general practitioner. The forenoons are occupied with General Medicine and Surgical Diagnosis and Minor Surgery in the Royal Infirmary and in the Victoria Infirmary. In the afternoons special subjects are dealt with in some of the special hospitals or in the special departments of the general hospitals—two subjects each afternoon. On the four Saturday forenoons Tuberculosis and Infectious Fevers are demonstrated at Ruchill Fever Hospital. Arrangements have also been made whereby a limited number of graduates may become attached to wards or out-patient departments nominally as clinical assistants for definite periods throughout the year. As such they work under the direct supervision of the physician or surgeon in charge, and carry out such detailed investigations as directed. Further information may be obtained from the Secretary of the Association, 7, Woodside-terrace, Glasgow.

Bursaries, Scholarships, and Prizes.—Bursaries and Prizes to the annual amount of over £1000 are appropriated to students in the Medical Faculty, and there are also several Scholarships and Fellowships which may be held by medical students who have gone through the Arts course. A full list will be found in the Calendar.

The great majority of the students take their hospital course at the Western, Royal, and Victoria Infirmaries, and at the district hospitals of Glasgow Parish Council, where clinical instruction is given by professors of the University and others. Clinical instruction on Fevers is given at Ruchill and Belvidere Hospitals, while special courses, largely of a practical nature and embracing work in Hospital or Asylum wards, are conducted by University Lecturers on the Ear, the Throat and Nose, Dermatology, Ophthalmology, Venereal Diseases, Tuberculosis, Insanity, and Electro-diagnosis and Therapeutics. Queen Margaret College, sometime conducted as a separate institution for the higher education of women, was made over to the University in 1892, and in it certain medical classes for women are conducted under lecturers appointed by the University Court.

QUEEN MARGARET COLLEGE (Women's Department of the University).—This is an integral part of the University of Glasgow. The classes are taught by professors of the University and other lecturers appointed by the University Court, and it is governed by the University Court and Senate. The curricula, regulations, and fees are the same as those of the male students, and the University degrees are open to women on the same conditions as to men. The School of Medicine is a special feature of the College, and gives full preparation for the medical degrees of the University. The women students attend classes

in the various University Buildings at Gilmore-hill and Queen Margaret College, the Royal Infirmary, the Western Infirmary, and the Victoria Infirmary. Facilities for clinical work are given in the Royal, Western and Victoria Infirmaries, in the Maternity, Royal Sick Children's, and other hospitals. The Arthur Scholarship is open every third year to students of first year; other Bursaries are open in Arts and Medicine, and women are admitted to certain University bursaries and fellowships.

THE ANDERSON COLLEGE OF MEDICINE, Dumbarton-road, Glasgow, W.1.—Courses are given which qualify for all the licensing boards and for the Universities of Oxford, Cambridge, London, Durham, Edinburgh, and Glasgow (the latter two under certain conditions). Extensive accommodation is provided for Practical Anatomy, Practical Chemistry, Practical Botany, Practical Zoology, Practical Physiology, Practical Pharmacy, Operative Surgery, and Public Health. Ample provision has also been made for the comfort of students. Women students are admitted on the same terms as men, and the Carnegie Trust extends its benefactions to students of the College. (Full particulars may be obtained from the Carnegie Trust Offices, Merchants' Hall, Edinburgh.)

Candidates for the L.D.S. can obtain the full medical curriculum in Anatomy, Chemistry, Physiology, Surgery, Practice of Medicine, and Materia Medica. The courses special to Dentistry are conducted at the Dental Hospital, Glasgow.

Communications relating to the College to be addressed to the Secretary of the Medical Faculty, Communications relating to the Preliminary Examination in General Education to be addressed to the Educational Institute Office, 47, Moray-place, Edinburgh; and relating to the Triple Qualification and to the Dental Qualification to be addressed to Royal Faculty Hall, 242, St. Vincent-street, Glasgow.

ST. MUNGO'S COLLEGE AND GLASGOW ROYAL INFIRMARY.—The classes in St. Mungo's College qualify for the medical qualifications of the English, Scotch, and Irish Conjoint Boards, for the dental diplomas of the English, Irish, and Scottish Boards and, under certain conditions, for the various universities, including the University of London. Students who have fulfilled the conditions of the Carnegie Trust are eligible for the benefits of this Trust during the whole course of their studies at St. Mungo's College.

Further particulars can be obtained from a syllabus which may be procured free on application to the Secretary of the Medical Faculty, 86, Castle-street, Glasgow.

ROYAL INFIRMARY, Glasgow.—The ancient connexion between the University of Glasgow and the Royal Infirmary was revived in 1911, when four University Chairs and several University Lectureships were established at the Infirmary. New Lectureships in Materia Medica and Pathological Biochemistry were established last year. St. Mungo's College which embraces and continues the original Royal Infirmary Medical School, is situated in the infirmary grounds. The infirmary has, including the Ophthalmic Department, 700 beds. There are special wards for diseases of women, of the throat, nose and ear, skin, eye, burns and septic cases. The wards are open to Women Students. In addition to the large medical and surgical departments there are departments for special diseases—viz., diseases of women, of the throat and nose, of the ear, of the eye, of the skin, and of the teeth. Five house physicians and 10 house surgeons, who board in the hospital free of charge, are appointed every six months. Clerks and dressers are appointed by the physicians and surgeons. As a large number of cases of acute diseases and accidents of a varied character are received these appointments are very valuable and desirable. There is a modern and fully equipped Electrical Pavilion and Massage Department, and year by year the latest and most approved apparatus for diagnosis and treatment has been added. Post-graduate Cla[s]es are held during August and September in Clin[i]al Medicine, Clinical Surgery, Clinical Gynæcolo[g]y, Diseases of the Skin, Biochemistry, Diseases of [t]e Throat, Nose and Ear, and in Diseases of the E[a]. Tutorial Classes for senior students are also h[e]d in August and September.

For information regarding fees and other particul[a]s, application should be made to the Superintendent.

GLASGOW WESTERN INFIRMARY.—This hospita[l] of 600 beds adjoins the University. Special wards [a]re set apart for Diseases of Women, Throat, Nose, [a]nd Ear, and for Affections of the Skin. In the out-pati[e]nt department there are special clinics for Diseases [o]f Women and for Diseases of the Throat, Ear, Te[e]th, Skin, Venereal Disease, and Electro-Therapeutics. [T]he Clinical Courses are given by the physicians and [s]ur-geons, each of whom conducts a separate class, [a]nd students require to enter their names at the beginn[i]ng of the session for the class which they propose [t]o attend. Special instruction is given to junior stude[n]ts by tutors or assistants, and clinical clerks and dres[s]ers are selected from the members of the class. All [t]he courses of clinical instruction are recognised by [t]he University of Glasgow and the other boards [i]n the kingdom. In the Pathological Department [t]he course is both systematic and practical, also po[s]t-graduate courses, and extends through the winter [a]nd following summer; these are likewise recognised [b]y the University for graduation. Eighteen resid[e]nt assistants are appointed annually, without sala[r]y, from those who have completed their cou[r]se. A Clinical Laboratory has been opened, and stude[n]ts receive laboratory instruction from the lecturer [i]n clinical methods. A School of Massage, Medi[c]al Electricity, and Swedish Remedial Exercises [h]as been established to qualify for the Certificate of [t]he Chartered Society of Massage and Medical Gymnasts.

Secretary: J. Matheson Johnston, C.A., 87, Un[i]on-street.

ROYAL HOSPITAL FOR SICK CHILDREN, Glasgow.—This institution consists of: (1) a hospital at York-[h]ill containing 270 cots built on an elevated and cen[t]ral site close to the University and opened in July, 19[1]; (2) a Dispensary, or Out-patient Department, in W[e]st Graham-street, opened in October, 1888; and (3) [a] country branch at Drumchapel, Dumbartonsh[i]re, containing 30 cots, opened in 1903. Children trea[t]ed must not be over 13 years of age, nor suffer fr[o]m infectious diseases. There are one professorship [a]nd two lectureships in the University of Glasgow [i]n connexion with the hospital, one professorship [a]nd one lectureship on the Medical Diseases of Infa[n]cy and Childhood, and one lectureship on Surgery [a]nd Orthopædics in Relation to Infancy and Childho[o]d. The lectures are both systematic and clinical, [b]ut particularly and chiefly the latter. In addition spe[c]ial facilities are given for post-graduate study.

Full information may be obtained from the Medi[c]al Superintendent.

GLASGOW ROYAL MATERNITY AND WOME[N]'S HOSPITAL, Rottenrow.—114 beds. A Maternity [a]nd Child Welfare Centre has been established consist[i]ng of a complete In-door and Out-door Antena[t]al Department and an Infant Consultation Clinic. A new research laboratory was opened last year. Full particulars as to fees and accommodation may [b]e obtained from the House Superintendent at [t]he hospital.

ROYAL SAMARITAN HOSPITAL FOR WOMEN, Glasg[o]w.—Increased to 160 beds by building extensi[o]ns completed last year. It offers excellent facilities [f]or clinical instruction in the diseases peculiar to wom[e]n. Lectures and clinical demonstrations are given [b]y members of the surgical staff to students and to p[o]st-graduates; and the hospital is represented on [t]he Board of the Glasgow Post-Graduate Medical Asso[c]iation formed for coördinating post-graduate medi[c]al teaching in all the hospitals. The Royal Samari[t]an

tureship in Gynæcology is a University Lectureship ociated with the Hospital.

or further information application may be made he Hospital, or to the Secretary, 149, St. Vincent- et, Glasgow.

LASGOW LOCK HOSPITAL, 41, Rottenrow, Glasgow. tains 80 beds for the treatment of females suffering n Venereal Diseases. There is also a Labour rd, and a well-equipped Dispensary for out-patient ndances. There is a Lecture Room and a oratory, equipped with modern appliances. Post- duate classes are also held. Recently the hospital been completely renovated and modernised. l information from the Secretary and Treasurer, J. Neilson Gray, LL.B., 65, Bath-street, Glasgow.

LASGOW OPHTHALMIC INSTITUTION, 126, West ent-street, and 131, Wellington-street (30 beds six cots).—This institution is administered by Royal Infirmary. Clinical and systematic courses ectures for students during the winter and summer sions. Operations on Wednesdays and Fridays. t-graduate classes and demonstrations are arranged ing the summer. Secretary and Cashier: R. rrison Smith, C.A., 135, Buchanan-street, Glasgow.

LASGOW EYE INFIRMARY, Berkeley-street and rlotte-street.—The wards and dispensary are gnised by the University of Glasgow for the purpose instruction in ophthalmology for graduation in dicine, and by the Royal Colleges of Physicians and geons of England for the Diploma in Ophthalmic dicine and Surgery. A Venereal Centre has been blished, and a Branch Dispensary has been opened Clydebank. Post-graduate Classes are held. retary and Acting Treasurer, Mr. Harold John ck, 171, West Regent-street, Glasgow.

LASGOW EAR, NOSE, AND THROAT HOSPITAL, , St. Vincent-street (48 beds).—At out-patient l in-door departments clinical instruction is given. st-Graduate Courses are held during the year. retary: D. N. Mackay, 144, St. Vincent-street, sgow.

NIVERSITY OF ST. ANDREWS (UNITED COLLEGE ST. ANDREWS AND UNIVERSITY COLLEGE, DUNDEE).

our Degrees in Medicine and Surgery are conferred the University of St. Andrews—viz., *M.B.*, *Ch.B.*, *D.*, *Ch.M.*, a Diploma in Public Health, and Diploma Dental Surgery (*L.D.S.*).

he Preliminary Examination is either the Arts the Pure Science Preliminary Examination. The s Preliminary includes English, Latin or Greek, l Mathematics, and a fourth subject which may a foreign language or Dynamics. In the Science liminary Examination French or German may be stituted for Latin or Greek and Mathematics must on the higher standard. Otherwise the subjects the same as the Arts Preliminary Examination. legree in Arts or in Science in any of the Universities he United Kingdom and in some colonial and foreign versities exempts. The Preliminary Examina- n for graduation in Medicine and Surgery, Arts or ence, of the University of St. Andrews is accepted equivalent to the Registration Examination required the General Medical Council (the certificate to lude the required subjects). Also the Final amination for a degree in Arts or Science and the al Examination for the Diploma of L.L.A.

Degrees of Bachelor of Medicine and Bachelor of rgery.—A pre-registration examination is held in ysics and Chemistry. Candidates must have been gaged in medical study for at least five years after istering as a medical student. In each of the st four years the candidate must have attended at st two courses of instruction in one or more of the bjects of study specified below, each course extending er a session of not less than five months, either continuous or divided into two terms, or, alternatively, one such course along with two courses, each extending over a session of not less than two and a half months. During the fifth or final year the candidate shall be engaged in clinical study for at least nine months at the Infirmary of Dundee or at one or more of such public hospitals or dispensaries, British or foreign, as may be recognised for the purpose by the University Court. The candidate must have received instruction in each of the following subjects of study, including such examinations as may be prescribed in the various classes—viz., Anatomy, Practical Anatomy, Chemistry, Materia Medica, Physiology, or Institutes of Medicine, Practice of Medicine, Surgery, Midwifery and the Diseases peculiar to Women and Infants, Pathology, Bacteriology, Practical Chemistry, Physics, Elementary Botany, Elementary Zoology, Practical Physiology, Practical Pathology, Forensic Medicine, and Public Health. The candidate must have attended for at least three years the Medical and Surgical Practice either of the Infirmary of Dundee or of a General Hospital elsewhere with not fewer than 80 patients, with a distinct staff of physicians and surgeons, and recognised for the purpose by the University Court. Additional subjects of study are Practical Pharmacy, Mental Diseases, Practical Midwifery, Operative Surgery, Vaccination, Children's Diseases, Fevers, Ophthalmology, Diseases of the Ear, Throat, and Nose, Anæsthetics, Dermatology and Post-mortem Examinations.

With respect to the places and institutions at which the studies of the candidate may be prosecuted the following regulations shall have effect:—1. Two of the five years of medical study must be spent in the University of St. Andrews. 2. The remaining three years may be spent in any University of the United Kingdom or in any Indian, Colonial, or Foreign University recognised for the purpose by the University Court, or in such medical schools or under such teachers as may be recognised for the purpose by the University Court. Women are admitted to graduation in Medicine, subject to certain provisions.

Professional Examinations for the Degrees of Bachelor of Medicine and Bachelor of Surgery.—Each candidate will be examined both in writing and orally, and also clinically where the nature of the subject admits, in the following divisions—viz., first, in Botany, Zoology, Physics, and Chemistry; second, in Anatomy and Physiology; third, in Materia Medica, Pathology and Bacteriology, Forensic Medicine and Public Health; and fourth, in Surgery, Clinical and Operative Surgery, Practice of Medicine and Clinical Medicine, and Midwifery and Gynæcology (Systematic and Clinical).

UNIVERSITY COLLEGE, Dundee.—This College is one of the constituent colleges of the University of St. Andrews. In the Conjoint Medical School there are spacious and well-equipped laboratories. The complete medical curriculum can be taken in Dundee, beginning in University College (first two years) and continuing in the Conjoint Medical School.

ROYAL INFIRMARY, Dundee (461 beds).—In addition to the ordinary Medical and Surgical Wards, there are special departments for Midwifery (In- and Out-door), for Diseases of Women, of Children, of the Eye, of the Ear, Nose, and Throat, and of the Skin; and for Clinical Pathology, Radiology, Electrotherapeusis, and Electrocardiography. An extension providing for a new X Ray Department and Massage Department and for additional Operation Theatre accommodation has been opened recently, and a new Maternity Department is being built at a cost of £32,000. Clinical teaching is given to male and female students by the Honorary Staff; post-mortem examinations are conducted by the pathologists. All courses of instruction are recognised by the University of St. Andrews and the other Boards of the United Kingdom. Nine Resident Medical Officers are appointed every six months. Clinical clerks and dressers are attached to the

Physicians and Surgeons; and Students are appointed as assistants in the pathological department. Further information may be obtained from the Medical Superintendent.

UNIVERSITY OF ABERDEEN.

The University of Aberdeen grants four degrees in Medicine and Surgery—viz., *M.D.*, *Ch.M.*, *M.B.*, and *Ch.B.* The Degree of Doctor of Philosophy (*Ph.D.*) is also granted in the Faculty of Medicine.

Degrees of M.B. and Ch.B.—Candidates, before entering on the curriculum, must have passed the Preliminary Examination or hold a qualification recognised as exempting from such examination, have attained the age of 17, and have passed the Pre-registration Examination in Physics and Chemistry.

The curriculum for the degrees extends over a period of five years, during which attendance is required in the following subjects: Botany, Zoology, Physics, Chemistry (Systematic and Practical), Anatomy (Systematic and Practical), Physiology (Systematic and Practical), Materia Medica and Therapeutics, Practical Pharmacy, Pathology (Systematic and Practical), Medical Jurisprudence, Public Health, Surgery, Medicine, and Midwifery.

Candidates must attend for at least three years the medical and surgical practice of a recognised hospital; they must have attended courses of at least nine months in clinical medicine and clinical surgery, and have acted as clerk in the medical and dresser in the surgical wards of a hospital. Attendance is required on the practice of a dispensary or the out-practice of a hospital and also on courses in Mental Diseases, Fevers, Ophthalmology, Post-mortem Examinations, Venereal Diseases, Tuberculosis, and other special subjects. The candidate is also required to have been properly instructed in Vaccination and to have attended at least 20 Midwifery cases.

Degrees of M.D. and Ch.M.—Candidates for either of these degrees must already hold the degrees of M.B. and Ch.B. of Aberdeen. A thesis (in duplicate) has to be presented and an examination has to be passed in Clinical Medicine (or in some special Department of Medical Science) or Clinical Surgery, as the case may be.

Degree of Ph.D.—For this degree candidates must pursue a course of special study or research during a period of nine academical terms as Research Students in the University of Aberdeen or in any College or Institution that may be affiliated thereto. A Thesis (in duplicate) must be presented for approval.

A diploma in Public Health is granted by the University to graduates in Medicine of a University in the United Kingdom, after a special examination.

Scholarships and Prizes.—In the Faculty of Medicine of the University of Aberdeen there are the following Bursaries, Scholarships, and Prizes:—Bursaries: about 15 Bursaries (competition and presentation) are open each year, of £15 to £30 per annum in value, most of them being tenable for three years. Scholarships: five Post-Graduate Scholarships, value £36 to £160 per annum. Prizes and Medals: 15 Gold Medals and Prizes for proficiency in special departments.

ABERDEEN ROYAL INFIRMARY (335 beds).—The main clinical work of the students is done in the Infirmary with its general and special facilities. A Department of Clinical Chemistry has recently been instituted by the physicians and surgeons on the staff; and, besides the RoyalInfirmary, students have the opportunity of attending the following institutions: City Fever Hospital, Sick Children's Hospital, General Dispensary and Lying-in and Vaccine Institutions, Royal Lunatic Asylum, Ophthalmic Institutions, and the Aberdeen Royal Mental Hospital. This hospital contains, with hospital attached to main institution and agricultural branch, about 950 beds. Clinical instruction is given to students during three months in summer. Physician-Superintendent, Dr. R. Dods Brown.

SCOTTISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

These Colleges have made arrangements by whi after one series of examinations, held in Edinburgh Glasgow, or both, the student may obtain the diplom of the three bodies. This is the Scottish Conjoi Board.

The three bodies grant their Single Licences only candidates who already possess legal qualifications Medicine or Surgery.

The hospitals which are recognised by the Scotti Conjoint Board as places where professional study i their diplomas can be pursued are all those institutio which feed the medical faculties of the universiti as well as all the places which are recognised the English and Irish Conjoint Boards.

Professional Education.—The candidate must p duce certificates or other satisfactory evidence having attended the following separate and disti courses of instruction: Physics, three mont Elementary Biology, three months; Chemistry, months; Practical or Analytical Chemistry, th months; Anatomy, during at least six mont Practical Anatomy, twelve months; Physiolo six months; Practical Physiology, three mont Materia Medica, three months; Pathology (includi Practical Pathology), nine months; Practice Medicine, six months; Clinical Medicine, nine mont Principles and Practice of Surgery, six mont Clinical Surgery, nine months; Midwifery, th months; Gynæcology, one course of not less than meetings; Diseases of Children, one course of not l than 13 meetings; Medical Jurisprudence and Pu Health, three months. The certified attendance lectures, demonstrations, and practical work must n be less than three-fourths of the total number roll-calls. Every student undergoes a course Practical Midwifery, but before attending at labo he is required to attend a course of lectures on Surg and Midwifery and to hold the offices of Clini Medical Clerk and Surgical Dresser. He must a attend for two and a half months instruction Practical Pharmacy; the certificate to be signed the teacher, who must be a member of the Pharm ceutical Society of Great Britain, or the superintend of the laboratory of a public hospital or dispensary, a registered practitioner who dispenses medicines his patients, or a teacher of Practical Pharmacy.

The student must attend for 27 months the Medi and Surgical practice of a public general hospi containing on an average at least 80 patients availa for clinical instruction, and possessing distinct staffs physicians and of surgeons. He must act as Surgi Dresser and Medical Clinical Clerk for not less th six months in the wards in each case, and rece practical instruction in administration of anæstheti He must attend for six months the practice of public dispensary especially recognised by any of t above authorities, or the out-patient practice of recognised general hospital. This attendance shou be made after the student has passed the First a Second examinations.

Candidates are also required to attend the followi courses: Diseases and Injuries of the Eye, th months; Insanity, three months; Infectious Diseas three months; Gynæcology, three months; Disea of Children, three months.

The curriculum lasts for five years, the fifth ye being devoted to clinical work.

There are four professional examinations:—

First Examination includes Physics, Chemistry, a Elementary Biology.

Second Examination includes Anatomy and Phys logy and Histology; and candidates may be admitt

this examination at the end of the second year of dical study.

Third Examination includes Pathology and Materia dica with Pharmacology.

Final Examination.—The Final Examination shall be taken earlier than the end of the fifth year of dy and shall embrace the following subjects:—dicine, including Therapeutics, Medical Anatomy, d Clinical Medicine; Surgery, including Surgical atomy, Clinical Surgery, and Diseases and Injuries the Eye; Midwifery and Diseases of Women; and, not passed previously, Medical Jurisprudence and blic Health; but it is optional to candidates who ve passed the Third Examination to be admitted the subject of Medical Jurisprudence and Public alth on lodging certificates of having attended the cessary course in that subject at any time; but subjects of Medicine, Surgery, and Midwifery shall taken together at any time after the end of the h Winter Session, provided that a period of 24 nths has elapsed since passing the Second Examina-n. All candidates shall be subjected, in addition the written and oral examinations, to clinical aminations in Medicine and Surgery, which shall lude the Examination of Patients, Physical agnosis, the Clinical Use of the Microscope, Examina-n of the Urine and Urinary Deposits, Surgical pliances, Bandages, and Surface Markings.

There are four periods of examination annually. The Registrar in Edinburgh is Mr. D. L. Eadie, Lauriston-place; and the Registrar in Glasgow, . Walter Hurst, 242, St. Vincent-street, to whom s and certificates must be sent for the respective aminations, and from whom particulars of fees can obtained.

For students registered with the General Medical uncil after Jan. 1st, 1923, more extensive Regula-ns are in force, and candidates applying for Regu-ions should state date of registration.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

In addition to the diplomas granted by the Scottish njoint Board the Royal College of Physicians ants its Single Licence to candidates already ssessing legal qualifications for professional practice.

The Royal College of Physicians of Edinburgh ants a *Membership* and a *Fellowship*.

Membership.—A candidate, who must be a Licen-te of a British or Irish College of Physicians, or a aduate in medicine of a University, approved by e Council, and 24 years of age, is examined in edicine, therapeutics, and in any branch of the partments of medicine specially professed, such general pathology, psychology, public health stetrics, gynæcology, diseases of children, tropical edicine, or medical jurisprudence.

Fellowship.—The Fellows are selected from the nks of the *Members*.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

The Royal College of Surgeons of Edinburgh lmits to the examination for its Single Licence any ndidates who hold a Diploma in Medicine of any ritish, Indian, or Foreign university or of any ritish College of Physicians, or of the Society of pothecaries of London or Apothecaries' Hall, ublin, granted under the provisions of the Medical ct, 1886, whose preliminary examination and course professional study is proved to be sufficient to lfil the requirements of the College, or to those who ve passed a full examination for any of the above. emale practitioners are admitted to the Licence the College and also to the Fellowship, and the gulations apply to practitioners of either sex.

The College grants a diploma of Fellowship after xamination to the holders of British surgical degrees r diplomas and the holders of recognised degrees of the Universities of Canada, Australia, New Zealand, and the Indian Empire.

The Fellowship.—Candidates must be 25 years of age and in practice for at least two years. The examination is written and viva voce, and includes surgery and surgical anatomy, operative surgery, and clinical practice. One optional subject must also be taken, the range of these specialisms covering nearly every branch of medicine. Candidates are not allowed to appear for more than three times at the examinations. One month's notice of intention to appear for examination must be given by the candidate to the College, together with credentials, signed by two Fellows, one a resident in Edinburgh, or six testimonials, to the President and Council.

THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

The Royal Faculty of Physicians and Surgeons of Glasgow grants a Fellowship and a Licence to be held separately. The Licence is granted as a separate qualification to qualified practitioners in Medicine after examination in surgery, including surgical anatomy and clinical surgery.

Fellowship.—The Fellowship of the Faculty is granted after examination in medicine or surgery, together with an optional subject, which may be anatomy or physiology or be selected from any special branch of medicine or surgery. Fourteen days' notice must be given by the candidate to the Faculty. In certain circumstances Fellows may be elected as a mark of distinction.

III.—IRELAND.

THE UNIVERSITIES.

UNIVERSITY OF DUBLIN, TRINITY COLLEGE (SCHOOL OF PHYSIC).

Matriculation.—University students take the Entrance of Trinity College and a Junior Freshman Term or a special Medical Preliminary; Extern Students, any examination recognised by the General Medical Council.

Pre-registration Examination in Elementary Physics and Chemistry.—Before beginning the five years' Medical curriculum students must pass an examination in elementary Physics and Chemistry. This examination is held at the end of September, in January, in March, and in June. Courses in preparation for it may be taken in the School of Physic.

Degrees in Medicine (M.B.), Surgery (B.Ch.), and Midwifery (B.A.O.).—Candidates for these degrees must be of B.A. standing and must be for at least five academic years on the books of the Medical School, reckoned from the date of registration. The Arts course may be taken concurrently with the Medical course, and the B.A. degree need not be taken before the final medical examinations, but the Medical degrees are not conferred without the Arts degree. The following courses must be attended:—(1) Lectures—Botany, Zoology, Physics and Practical Physics; Systematic, Descriptive and Applied Anatomy; Chemistry and Practical Chemistry; Histology, Physiology, Practical and Applied Physiology; Practice of Medicine; Midwifery and Gynæcology, Pathology and Bacteriology; Materia Medica and Therapeutics; Medical Jurisprudence and Hygiene; Surgery and Operative Surgery; (2) three courses of nine months' attendance on the Clinical Lectures of Sir Patrick Dun's or other recognised Hospital; (3) Practical Vaccination, one month's instruction; (4) Mental Disease, three months; (5) Practical Midwifery with Clinical Lectures, including not less than 20 personally conducted cases, six months; (6) Ophthalmic Surgery, three months. Three groups of examinations have to be passed. Preliminary Scientific Examination, including Physics and Chemistry, Botany, and Zoology. The Intermediate Medical, Part I., including Anatomy, Physiology, and Organic Chemistry; and Part II.,

including Applied Anatomy and Applied Physiology; and the Final Examination, which is divided into Part I., Materia Medica and Therapeutics, Hygiene and Jurisprudence, Pathology and Bacteriology; and Part II., Medicine, including Clinical Medicine and Mental Diseases; Surgery, including Operative and Ophthalmic Surgery; Midwifery and Gynæcology. Part I. may be passed in the fourth year and Part II. completed at the end of the fifth.

Doctor in Medicine.—A Doctor in Medicine must have passed all the qualifying examinations and must be a B.A. of three years' standing. He must also submit a thesis and pass an Examination before the Regius Professor of Physic.

Master in Surgery.—A Master in Surgery must be a Bachelor in Surgery of the University of Dublin of not less than three years' standing, and must produce satisfactory evidence of having been engaged for not less than two years from the date of his registration in the study, or study and practice, of his profession. He must then pass a special examination.

Master in Obstetric Science.—A Master in Obstetric Science must be a Bachelor in Obstetric Science of two years' standing, and must produce evidence of having been engaged in the study of Obstetric Medicine and Surgery during two years. He is then required to pass a special examination.

Diploma in Gynæcology and Obstetrics.—A post-graduate diploma is conferred upon registered medical practitioners who take a six months' course at the Rotunda Hospital or other recognised institution, a six months' course in Trinity College, and then pass a special examination. The minimum time required for the complete course is nine months.

Bachelor in Dental Science and Master in Dental Science.—The regulations under which these degrees are awarded can be obtained by application to the Registrar of the School of Physic.

All Degrees and Courses of Instruction are open to women students.

Post-graduate Instruction.—Arrangements have been made, with the approval of the Board of Trinity College, for a post-graduate course of instruction at the School of Physic during the autumn from Monday, Sept. 12th, to Saturday, Oct. 1st. Members of the class can reside in college rooms and dine on commons.

Clinical Instruction.—The hospital facilities for clinical instruction available in Dublin will be described below.

NATIONAL UNIVERSITY OF IRELAND.

Matriculation.—All students must pass a matriculation examination; the examination taking place in June and September in Dublin, and at certain local centres, includes five subjects, three of which must be Irish, English, and mathematics. All students must pass in Irish except students not born in Ireland, and other students whose home residence shall have been outside Ireland during the three years immediately preceding their matriculation; but all such students will be expected to attend a course of instruction in Irish Literature and History prior to obtaining any degree in the University. The following are the subjects for examination:—1. Irish. 2. Latin or Greek. 3. French, German, Italian, Spanish, Portuguese, Welsh, or any other modern language approved by the Senate. 4. English. 5. Mathematics. 6. Latin, Greek, French, German, Welsh, Spanish, Italian, Portuguese, or any other modern language approved by the Senate, History, Geography, Applied Mathematics, or Physics as an alternative, Chemistry, Botany, Agricultural Science, Commerce, Music, and for women candidates only Physiology and Hygiene. Students entering for degrees in Medicine or Dentistry, if already registered by the General Medical Council, must take Irish, Latin, English, Mathematics, and a fifth subject.

The medical degrees granted are:—

M.B., B.Ch., and B.A.O.; and M.D., M.Ch., and M.A.O., Ph.D.—Printed forms of application for admission to any medical examination may be h from "The Registrar, The National University Ireland, Dublin."

The Constituent Colleges of the National Universi of Ireland at which the full curriculum for medi degrees can be obtained are University Colle Dublin; University College, Cork; and Universi College, Galway.

UNIVERSITY COLLEGE, DUBLIN.—*Matriculation.* Almost all the students of the College a matriculated students of the National Universi of Ireland. The pre-registration examination physics and chemistry is taken after matriculati either at the beginning of or during the win session. The course is of five years' duration and da from the passing of the pre-registration examinati

Degrees of M.B., B.Ch., and B.A.O.—The Fi Examination includes Applied Physics, Appli Chemistry, Botany, Zoology, and Applied Biolo The examination may be taken in two part Part I., Physics and Chemistry; Part II., Bota and Zoology. Honours may be obtained o when both parts are taken as one examination. T Second Examination includes Anatomy and Phys logy. Both must be passed at the same time. T Third Examination includes Pathology, Medi Jurisprudence and Hygiene, and Materia Medi The Fourth examination includes Hygiene a Medical Jurisprudence.

The Examination in Medicine, Midwifery, Surge and Ophthalmology includes both the theoretical a the clinical branches. No student can enter for t M.B., B.Ch., or B.A.O. until the end of the fifth y when the curriculum has been completed. T degree of M.D. may be obtained either by examinati or on published work.

UNIVERSITY COLLEGE, CORK: THE SCHOOL MEDICINE.—Students must have passed the Matricu tion Examination of the University or some otl recognised examination, and a preliminary exami tion recognised by the General Medical Council.

Medical Students who have passed the Fi Professional Examination of the Conjoint Boa of Ireland, England, or Scotland may be admitt to the rank of second-year students on mak application to the Council. Similarly, students w have passed the Second Professional Examinat of the same Boards may be admitted to the rank third-year students; and those who have pass the Third Professional Examination of the Dub Colleges, or of the Edinburgh Colleges and Glasg Faculties, may rank as fourth-year.

The school is provided with physiologi toxicological, pathological, and pharmaceuti laboratories, materia medica, anatomical and pat logical museums, as well as a collection of surgi and obstetrical instruments and appliances. Th are dissecting-rooms, well-appointed physical, che cal, and biological laboratories, a large natu history museum in the adjoining building, and part the College ground is laid out as a botanical gard The plant houses are well filled with plants and open to the students in the class of Botany. T Library contains about 70,000 volumes and is op daily during term time to students. The Medi Museum occupies a large room erected at northern end of the medical buildings. There Students' Clubs for men and women students of College and various athletic clubs.

Residence of Students.—Students not living home, or with relatives or friends, sanctioned their parents or guardians, are required to live a hostel or in recognised lodgings, and register th addresses each session. The Honan Hostel, adjoin the College, is equipped by private endowme A number of sets of rooms, together with recreat and common rooms, are provided for lay stude who may desire to live there. For full particul apply to the Warden. The Ursuline Convent, Bla rock, has a house of residence, quite separate fr their Secondary School, for Catholic women stude

Clinical Instruction.—Students may attend the South Charitable Infirmary and County of Cork General Hospital, Cork North Charitable Infirmary and City of Cork General Hospital, the Mercy Hospital, the Cork District Lunatic Asylum, the Victoria Hospital for Diseases of Women and Children, the County Lying-in Hospital, the Cork Maternity, Fever, the District, and Ear, Eye, and Throat Hospitals.

Complete information with regard to class fees, scholarships, and prizes can be obtained from the Dean of the Medical Faculty, and in respect of the hospitals from the Secretaries.

UNIVERSITY COLLEGE, GALWAY: SCHOOL OF MEDICINE.—The College contains a well-lighted and ventilated dissecting room and an anatomical lecture theatre; physiological, pathological, pharmaceutical, chemical, and physical laboratories; anatomical, pathological, gynæcological, and materia medica museums; as well as large natural history and geological museums and an extensive library in which students can read and from which they can borrow books. There are 12 Entrance Scholarships, value £25 each, for which Medical Students compete with other students on the Entrance Course. In the Second, Third, and Fourth years three Scholarships in each year, value £25 each, are reserved for Medical Students. The H. H. Stewart Scholarships (£10 a year for three years) are awarded by the University in Anatomy and Physiology at Second Medical Examination amongst students of the three constituent Colleges. Travelling Studentships (£200 a year for two years) are offered by the University for competition amongst Medical Graduates of the three Colleges of not more than two years' standing. Women students are eligible for all College and University Degrees, Distinctions, and Prizes. There are extensive grounds, a portion of which is occupied by a Botanic Garden and a portion is at the disposal of the College Athletic Union. There are several student societies in the College, including a Biological Society. There are abundant facilities for research and Post-graduate work in the Chemistry, Physiology, and Pathology departments. There are ample facilities for Women Students. Further information can be obtained from the Registrar of the College.

Clinical Instruction is given in the Galway Tuberculosis Hospital and in the Galway Central and Fever Hospitals, containing on an average 350 patients.

CENTRAL HOSPITAL, GALWAY (300 beds).—In this completely renovated hospital, in addition to the Finer Surgical and Medical Departments, there are now Eye and Ear, Throat and Nose, Gynæcological and Obstetrical, Pathological, X Ray, Ultra-Violet Rays, and Electrical and Massage Departments. Students attend from University College, Galway. Medical and Surgical Clinics are held on alternate days during term. One Resident Physician and one Resident Surgeon are appointed every six months. The hospital is open to qualified medical men for post-graduate work.

QUEEN'S UNIVERSITY OF BELFAST.

There are six degrees in the Faculty of Medicine of the University—viz., Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), and Master of Obstetrics (M.A.O.). The University also grants a Diploma in Public Health, particulars of which will be found in the University Calendar. The degrees of M.B., B.Ch., and B.A.O. are the primary degrees in the Faculty of Medicine, and are conferred at the same time and after the same course of study. No student is admitted to the final examination for these degrees until he has shown: (1) that he is a matriculated student of the University; (2) that he has completed the prescribed course of study in the Faculty of Medicine extending over a period of not less than five academic years from the date of his registration as a student of Medicine; (3) that he has passed the several examinations prescribed; (4) that he has attended in the University during three academic years at least the courses of study prescribed for such degrees (the Senate may accept, for not more than two academic years of the required five, courses of study pursued in any other University or School of Medicine approved by the Senate); and (5) that he has attained the age of 21 years. Every candidate for admission shall matriculate or fulfil such other test of fitness as may be prescribed by the Senate, or may be exempted from the matriculation examination by having passed similar examinations elsewhere. For information as to Scholarships and Prizes inquiry should be made of the Secretary of the University.

Primary Degrees of M.B., B.Ch., B.A.O.—All candidates for these degrees must satisfy the examiners in the subjects of four examinations.

The First Medical Examination.—The subjects of this examination are Chemistry (Inorganic and Organic), Experimental Physics, Botany and Zoology. The examination will be divided into two parts which may be taken separately: I., Chemistry and Physics; II., Botany and Zoology.

The Second Medical Examination.—The subjects are Anatomy and Practical Anatomy, Physiology and Practical Physiology. Candidates who have previously passed the First Medical Examination may present themselves for this examination at the close of their second year.

The Third Medical Examination.—The subjects are: (1) Pathology and Practical Pathology; (2) Materia Medica, Pharmacology and Therapeutics; (3) Medical Jurisprudence; (4) Hygiene. Candidates who have previously passed the Second Medical Examination may present themselves for this examination at the close of the third year. Attendance on a course in any subject of the Third Medical Examination shall not entitle a student to a certificate of attendance unless he has previously passed in all the subjects of the Second Medical Examination.

The Fourth Medical Examination.—The subjects are: (1) Medicine; (2) Surgery; (3) Midwifery; (4) Ophthalmology and Otology. This examination may be taken in two parts: I., Systematic; II., Clinical, Practical and Oral. Candidates who have previously passed the Third Examination may present themselves for Part I. of the Fourth Examination at the close of the fourth year, provided that they have fulfilled the necessary requirements as to attendance, &c., on the courses of instruction in the subjects of examination. Candidates who have passed Part I. of this examination may present themselves for Part II. at the close of the fifth year, provided that they have fulfilled the necessary requirements as to hospital attendance on the various clinical courses in the subjects of examination. Parts I. and II. may be taken together at the close of the fifth year. Attendance on a course in any subject of the Fourth Medical Examination shall not entitle a student to a certificate of attendance unless he has passed in the subjects of the Second Medical Examination.

Degrees of M.D., M.Ch., and M.A.O.—These degrees are not conferred until the expiration of at least three academic years, or in the case of graduates of the University in Arts or Science of at least two academic years, after admission to the primary degrees in the Faculty of Medicine. Every candidate must show that in the interval he has pursued such courses of study, or been engaged in such practical work as may be prescribed. These degrees may be conferred by the Senate either (*a*) after an examination, which includes written, oral, clinical, and practical examinations; or (*b*) on the submission of a thesis or other evidence of original study or research, to be approved by the Faculty of Medicine after an oral or other examination of the candidate on the subject.

The Medical School.—The Donald Currie Chemical Buildings contain a lecture theatre, a preparation room, a chemical museum, a large class-room for

elementary practical chemistry, laboratories for qualitative and quantitative analysis, rooms for water and gas analysis, dark room for photographic purposes and balance room, provided with all modern appliances. The Anatomical Department contains a large and well-lighted dissecting-room, a lecture-room, a professor's and demonstrator's room, a bone-room, and a laboratory for microscopic and photographic work. The Medical Museum is in the same building. The Jaffé Laboratories for Physiology comprise a lecture theatre, laboratories for practical work in chemical physiology, histology, and experimental physiology, and in addition small private research rooms, including balance, galvanometer, and centrifuge rooms. The J. C. White laboratories, recently founded, are fully equipped for research in biochemistry and bacteriology. The Musgrave Pathological Laboratory.—In this department opportunity is afforded for research in pathology and bacteriology. The department is in touch with most of the hospitals in Belfast, and there is an ample supply of material for investigation by graduates in morbid histology, clinical pathology, and the bacteriology of infectious diseases. A course in pathology or bacteriology is given to graduates, and members of this class have an opportunity of seeing the methods employed in the various investigations carried out in the department for the Public Health Committee of the corporation in connexion with water-supply, sewage disposal, meat- and milk-supply, the diagnosis of cases of infectious diseases, &c. The certificate issued to members of the class in bacteriology qualifies for the D.P.H. degree. The Pharmaceutical Laboratory is fitted and equipped for the work of practically instructing students in the compounding and dispensing of medicines.

Clinical Instruction.—The following institutions are recognised by the University as affording proper opportunities for clinical instruction: the Royal Victoria Hospital, the Mater Infirmorum Hospital, the Union Hospitals, the Belfast Hospital for Sick Children, the Belfast Maternity, the Ulster Hospital for Women and Children, the Ulster Eye, Ear, and Throat Hospital, the Belfast Ophthalmic Hospital, the Purdysburn Fever Hospital, and the Belfast District Lunatic Asylum. Complete information can be obtained from the respective Secretaries.

ROYAL VICTORIA HOSPITAL, BELFAST, 436 beds.—Students eligible for McGrath, McQuitty, Malcolm, Coulter Smyth and Elwood Scholarships aggregate annual value £185. Twelve House Surgeons and House Physicians. Thirty-six resident pupilships, three months each, annually for Senior Students, of which a proportion is allotted to Women Students, Special Departments for Radiology, Clinical Pathology, V.D., Dermatology, Gynæcology, Vaccine Therapy, Electrocardiography, Dentistry.

MATER INFIRMORUM HOSPITAL, BELFAST.—This hospital contains 270 beds and is open at all hours for the reception of accidents and urgent cases. Clinical instruction is given daily by Physicians and Surgeons. Surgical operations are performed daily. The out-patient departments in Medicine and Surgery, also the special dispensaries for Gynæcology, Ear, Eye and Throat, Electrotherapeutics, Venereal Diseases are very largely attended and afford valuable opportunities to students for the study of those subjects. A House Physician and two House Surgeons are elected every six months. Resident pupils are admitted as the vacancies arise. Three Exhibitions and a Gold Medal are competed for annually in June. Certificates of attendance upon this hospital are recognised by all the Universities and licensing bodies in the United Kingdom.

BELFAST INFIRMARY AND HOSPITAL (1600 beds).—Clinical courses are given quarterly, and a course for D.P.H. in Hospital. Intern Venereal Clinic in Infirmary under Corporation scheme. Maternity Hospital recognised for Practical Midwifery training. Particulars may be obtained on application to the Hon. Sec. Visiting Medical Staff. Certificate of vaccination class recognised by Local Government Board. A new department for Cancer with 32 beds has been opened.

THE BELFAST HOSPITAL FOR SICK CHILDREN, Queen-street (45 beds).—Clinical instruction is given in this hospital. During the Winter Session two Courses of Lectures are delivered on the Medical and Surgical Diseases incidental to Infancy and Childhood. Demonstrations in Ophthalmology and Pathology are given and ample opportunities are afforded in the wards and in the Out-patient Department for gaining a practical and theoretical knowledge of the diseases of Infancy and Childhood. This Hospital grants Certificates in Diseases of Children, which are recognised by the various Examining Bodies. A Gold Medal is offered for competition at the close of the session.

MATERNITY HOSPITAL, Townsend-street, Belfast.—Twenty-five beds in constant occupation, and exclusively devoted to Midwifery and Antenatal conditions. There is also a large district. The Queen's University of Belfast have erected a Students' Hostel in connexion with the Hospital where six Students and Post-graduates are received each month. The University Tutor in Obstetrics resides in the Hostel and Students conduct their cases under his supervision. There is a large Antenatal Department and a Department for Venereal Diseases. Communications should be made to C. H. G. Macafee, M.B., Hon. Secretary of the Medical Staff.

ULSTER HOSPITAL FOR CHILDREN AND WOMEN, Templemore-avenue, Belfast (56 beds).—Clinical instruction to students in Diseases of Children, Gynæcology and Obstetrics. Special departments: Radiology and Actino-therapy, Eye, Ear, and Throat, V.D. Clinic and Antenatal Clinic. Gold Medal awarded annually. Two House Surgeons appointed from students of hospital.

BENN ULSTER EYE, EAR AND THROAT HOSPITAL, Clifton-street, 30 beds, and BELFAST OPHTHALMIC HOSPITAL, Great Victoria-street, 30 beds.—Practical demonstrations by the staff and occasional clinical lectures in the subjects of Ophthalmology, Otology and Laryngology. Clinical instruction is given daily.

BELFAST FEVER HOSPITALS.—City Fever Hospital, Purdysburn (360 beds); Union Fever Hospital (200 beds). Clinical Classes are held during the winter and summer sessions. Post-Graduate (D.P.H.) Classes are also held.

BELFAST MENTAL HOSPITAL (PURDYSBURN VILLA COLONY) (1100 beds). University Lectures and clinics.

IRISH MEDICAL CORPORATIONS GRANTING DIPLOMAS.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND AND ROYAL COLLEGE OF SURGEONS IN IRELAND.

The Irish Conjoint Board requires of candidates the passage either of its own preliminary examination in the subjects of general education or proof that the candidate has passed one of the tests accepted by the General Medical Council as well as passing in the Pre-Registration Examinations in Chemistry and Physics and Biology.

Professional Examinations.—There are three professional examinations, the first of which cannot be passed earlier than the end of the second winter session, nor the final before the conclusion of full five years of medical study. Before being admitted to any of them the candidate must show that he has studied the different subjects in practice and theory for the requisite periods, certificates to this effect being accepted from the authorities of most of the

cognised medical schools at home and abroad. he first examination deals with (*a*) Anatomy, id (*b*) Physiology and Histology. The second xamination deals with (*a*) Pathology, (*b*) Materia edica, Pharmacy, and Therapeutics and Ophthalmo-gy, and may be taken separately.

Final Examination.—This is divided into three visions, which cannot be completed until at least ve years have passed in medical studies other than ose for the Pre-Registration Examinations, and ve years at least since the beginning of the curri-lum. The divisions are (*a*) Medicine, including evers, Mental Diseases, and Diseases of Children;) Surgery, including Operative Surgery; (*c*) Mid-ifery, including Diseases of Women and Children, id the Practice of Vaccination.

Diploma in Psychological Medicine.—There are two aminations in connexion with this Diploma: art I. consists of (*a*) Anatomy and Physiology of the ervous System; (*b*) Psychology. Part II.: (*a*) eurology, including Clinical and Pathological Neuro-gy; (*b*) Psychological Medicine, including its legal lationships.

Further information can be obtained from the cretary of the Committee of Management, Royal llege of Surgeons, St. Stephen's Green.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

The College issues its Licences in Medicine and in dwifery to practitioners whose names appear on the edical Register of the United Kingdom.

The Licence in Medicine.—The subjects of examina-n are: Practice of Medicine, Clinical Medicine, thology, Medical Jurisprudence, Midwifery, Hygiene, d Therapeutics.

The Licence in Midwifery.—Candidates must pro-ce certificates of registration. A registered medical actitioner of five years' standing may be exempted m the examination by printed questions.

The Membership.—Examinations for Membership held in February, June, and November.

The Fellowship.—Fellows are elected by ballot. pplicants must have been a Member of the College at least one year and must have attained the age 27 years.

Further particulars can be obtained from the gistrar of the Royal College of Physicians of land, 6, Kildare-street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The College issues its Licence in Surgery to actitioners whose names are entered either on the edical Register for the United Kingdom, the Colonial edical Register, or the Foreign Medical Register the year in which he presents himself for examina-n, and who satisfies the Council that he has passed rough a course of study and Examinations equiva-nt to those required by the Regulations of the Irish njoint Board.

Candidates are examined in General Surgery aper and oral), Clinical Surgery, Surgical Pathology ral), Operative Surgery, Surgical Anatomy (paper), d Ophthalmic and Aural Surgery (clinical).

Diploma in Midwifery.—A diploma in Midwifery is anted after examination to persons possessing a gistrable qualification.

Fellowship Examinations.—Candidates for the Fel-wship shall make application to the President and uncil to be admitted to examination. They are quired to pass two examinations—Primary and nal. Candidates may present themselves for the nal Examination immediately after passing the imary part, provided they have complied with the necessary regulations. The subjects for the Primary Examination are (*a*) Anatomy, including Dissections; and (*b*) Physiology and Histology. The subjects for the Final Examination are Surgery, including Surgical Anatomy and Pathology. For admission to the Final Examination the candidate must have passed the Primary Examination, and must be a Licentiate or Graduate in Surgery of a university or licensing body recognised by the General Medical Council; all such candidates must not be less than 25 years of age.

Further particulars can be obtained from the Registrar of the College, Stephen's-green West, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND (SCHOOLS OF SURGERY).—The schools of surgery are attached by Charter to the Royal College of Surgeons and have existed as a department of the College for over a century. They are carried on within the College buildings and are specially subject to the supervision and control of the Council, who are empowered to appoint and remove the professors and to regulate the methods of teaching pursued. The buildings have been reconstructed, the capacity of the dissecting-room nearly trebled, and special pathological, bacteriological, public health, and pharmaceutical laboratories fitted with the most approved appliances in order that students may have the advantage of the most modern methods of instruction. The entire building is heated by hot-water pipes and lighted throughout by the electric light. Winter Session commences in October; Summer Session in April. Scholarships and Prizes: Carmichael Scholarship, £15; Mayne Scholarship, £8; Stoney Memorial gold medal; Operative Surgery, gold and silver medals; Barker Prize, £26 5*s.*; H. Macnaughton-Jones gold medal in Obstetrics and Gynæcology; and class prizes and medals. Prospectuses and guide for medical students can be obtained post free on written application to the Registrar, Royal College of Surgeons, Stephen's-green W., Dublin.

APOTHECARIES' HALL OF IRELAND.

The Licence of this Hall is granted to students who present certificates of having fully completed the course of study as laid down in the curriculum and who pass the necessary examinations. The diploma of the Hall entitles the holder to be registered as a practitioner in medicine, surgery, and midwifery, with also the privileges of the Apothecary's Licence.

Candidates must pass two Professional Examinations, called the Primary Examination and the Final Examination, which are conducted at separate times, partly in writing, and partly practically and orally. The Primary and Final Professional Examinations are held twice a year—viz., in June and November, or such other dates as may be determined.

Candidates who produce satisfactory evidence of having passed an examination for a Degree or Licence in Medicine, conducted by any University or Royal College in the British Empire, or by any Foreign University whose Degrees are recognised in the Foreign List of the Medical Register, will be exempted from the Primary Examination.

The subjects for Part I. of the Primary Examination are: Anatomy, Physiology and Histology, including Bio-Chemistry; and for Part II., Materia Medica and Pharmacy, Pathology, and Medical Jurisprudence and Hygiene.

For the Final Examination the subjects are: (*a*) Medicine and Clinical Medicine and Clinical Methods. (*b*) Surgery—Clinical, Ophthalmic and Operative; and Surgical Anatomy. (*c*) Midwifery and Gynæcology, and Practical Pharmacy and Materia Medica (if not taken at Intermediate Examination).

Each candidate before receiving his diploma must produce evidence that he has attained the age of 21 years. The details of the course of education required and syllabus of the examinations will be supplied by the Registrar at 95, Merrion-square, Dublin.

HOSPITALS AFFORDING PRACTICE RECOGNISED BY THE IRISH UNIVERSITIES AND CORPORATIONS.[1]

SIR PATRICK DUN'S HOSPITAL, Grand Canal-street, Dublin.—Classes both in Medicine and Surgery are held each morning from 9 o'clock from Oct. 1st till the end of June. Special classes for junior students will be held in the wards during the months of October, November, and December. A Resident Surgeon, with salary, is appointed annually. Ten Resident Pupils are appointed every four months. Twelve surgical Dressers and twelve Clinical Clerks are appointed each month. There are facilities for women students.

The practice of the hospital is open to all students, and the certificates are recognised by Dublin University, the National University and Royal Colleges of Surgeons of England, Ireland, and Scotland. It is an official "Treatment Centre" for venereal diseases.

Prizes and Medals.—Clinical medals and prizes amounting to about £21 each will be awarded in Medicine and in Surgery respectively in accordance with the will of the late Rev. Samuel Haughton, M.D., S.F.T.C.D. . Candidates who fail to obtain these medals and prizes will be awarded special certificates in Medicine and in Surgery provided they show sufficient merit.

Further information will be supplied by the Hon. Secretary to the Medical Board.

ADELAIDE HOSPITAL, Peter-street, Dublin.—Two resident surgeons are elected half-yearly and four or more resident pupils every six months. At the termination of the session prizes in Clinical Medicine, in Surgery, in Gynæcology, and in Dermatology will be awarded.

Prizes.—Wallace Beatty Memorial bursaries are awarded at the commencement of the winter session. In addition to the junior prizes the Hudson Scholarship, £30 and a gold medal, as well as a prize of £10 together with a silver medal, are awarded at the end of the session for proficiency in medicine, surgery, gynæcology, and pathology.

The certificates of attendance are recognised by all the Universities and licensing bodies in the United Kingdom. Further particulars may be obtained from the Secretary of the Hospital.

JERVIS-STREET HOSPITAL, Dublin.*—Founded 1718; rebuilt 1886. 130 beds. The operation theatre contains all modern requirements.

MATER MISERICORDIÆ HOSPITAL, Dublin. (Under the care of the Sisters of Mercy.)—This Hospital, containing 382 beds, is open at all hours for the reception of accidents and urgent cases. Clinical instruction is given by the Physicians and Surgeons at 9 A.M. daily. Ophthalmic Surgery is taught in the Special Wards and in the Dispensary. Surgical operations are performed daily. Connected with the hospital are extensive Dispensaries, which afford valuable opportunities for the study of general Medical and Surgical Diseases, and Accidents; a fully-equipped Biochemical Laboratory, a modern Electro-Massage Department, and Electro-cardiograph room. Instruction is given on Pathology and Bacteriology. Three House Physicians, eight House Surgeons, and 18 resident pupils are elected annually. Dressers and Clinical Clerks are appointed regularly and certificates given for merit. Leonard Prizes will be offered for competition annually. Certificates of attendance are recognised by all the Universities and licensing bodies in the United Kingdom. There is a Private Hospital for the reception of Medical and Surgical cases. A Training School and a Home for Trained Nurses are connected with the Hospital, and Nurses who have passed a qualifying examination can l obtained on application to the Lady Superior.

Entries can be made with any of the physicians surgeons, or with the Registrar, 13, Merrion-squa Detailed information may be obtained from t Secretary, Medical Board.

MEATH HOSPITAL AND COUNTY DUBLIN INFIRMARY.- 150 beds are available for clinical teaching. A buildi containing 40 of these beds intended for the isolat treatment of fevers is attached to the hospital. T certificates of this hospital are recognised by all t universities and licensing bodies of the Unit Kingdom. Medical Clinical Clerks and Surgic Resident Pupils and Dressers are appointed eve three months. Two House Surgeons and a Reside Casualty Officer are elected twice annually. T Smyth Memorial Prize in Medicine, value £50, awarded in alternate years and is open to students the hospital who have attended for at least tv academic years. The next examination will be he in June, 1928. The Treasurer of the Medical Boa will give full information.

MERCER'S HOSPITAL.—This hospital contains 1 beds for medical and surgical cases, and arrangemen have been made with the medical officers of Cor street Fever Hospital whereby all students of t hospital are entitled to attend the clinical instructi of that institution and become eligible for the reside posts. There is a large dispensary for out-patie and a modern X ray department. An electro-cardi graph has been installed. Students of the hospi are permitted to attend the gynæcological departme where they receive practical instruction. There a special wards for the treatment and study of childre diseases. A gold medal is awarded annually to t best student. During the past few years the hospi has undergone extensive alterations in order to bri it up to modern requirements. A House Surgeon appointed annually. There are six men and two wom Resident Pupils, and Clinical Clerks and Dressers a appointed from members of the classes.

For further particulars apply to Dr. Leona Abrahamson, Hon. Sec., Medical Board, 40, Fi william-place.

RICHMOND, WHITWORTH, AND HARDWICKE HO PITALS (HOUSE OF INDUSTRY HOSPITALS), Dublin.* These hospitals contain 330 beds—130 for Surgi cases, 80 for Medical cases, 78 for Fever and oth Epidemic Diseases, and an Auxiliary Wing of 42 bed A Resident Physician and a Resident Surgeon a appointed each half year and are paid for th services. Resident Clinical Clerks are appointed ea quarter and provided with furnished apartmen and fuel. These appointments are open not only advanced students but also to those who are qualifi in Medicine and Surgery. The Dressers are select from among the best qualified of the pupils witho the payment of any additional fee. Women studen are eligible for election as residents, and spec apartments are reserved for their use. Extensi alterations and improvements have recently been ma in the X ray, electro-therapeutic, and electro-card graphic departments. For information apply Dr. G. E. Nesbitt, 71, St. Stephen's Green, Dublin.

ROYAL CITY OF DUBLIN HOSPITAL.—135 beds a a special wing for the treatment of fevers and co tagious diseases founded by the late Mr. Drummo There is a large nursery where special opportunit are afforded for the study of diseases of childre both medical and surgical. There are also spec wards for ophthalmic, aural, and gynæcological cas There is a largely attended out-patient departme where students are allowed to attend accidents a dress cases under supervision. Six resident pup are appointed every three months. A House Surge and a House Physician are appointed annually. F information apply to the Secretary.

[1] This list of the institutions recognised by the Conjoint Board of Ireland is supplemented in the regulations of the Colleges by those hospitals mentioned as recognised institutions in Scotland and England. The recognised facilities for clinical instruction in some of the Irish centres have been described.

* No returns.

* No returns.

DR. STEEVENS' HOSPITAL, Dublin (Kingsbridge).—50 beds, only 150 now in use. There is accommodation for 10 resident pupils, each of whom is provided with a separate bedroom, and board is supplied by the hospital at a reasonable rate. There is an Electric Massage Department and a "Sun-Ray" Department. Full information with regard to the terms for such residency can be had from the Resident Surgeon at the Hospital. Secretary: E. D. F. Banks.

ROTUNDA HOSPITAL, Dublin.—This institution is the largest combined gynæcological and maternity hospital in the British Empire. Over 4000 confinements are attended annually and upwards of 1000 gynæcological patients admitted. Students can take out their necessary gynæcological and midwifery practical courses. The work of the hospital is carried on continuously through the year, and consists of daily clinical instruction in the maternity department and examination and operations in the gynæcological department. Qualified students are given facilities for studying and assisting in the management of all abnormal cases so far as is practical. An antenatal dispensary is held three times weekly and all students are encouraged to attend. A special class in gynæcological examination and diagnosis is conducted by the Assistants to the Master. In addition there is a special class in operative obstetrics, limited in number. The pathological laboratory is under the supervision of a skilled pathologist. There is a fully equipped X ray installation under the care of a competent radiologist. The appointments on the staff of the hospital are given to qualified past students of the hospital who have taken the L.M. and consist of Extern Assistants for six months, one being appointed every three months. From these the Assistants to the Master are appointed. Women students can reside in the hospital on the same terms as men. The mess room and sleeping quarters have been decorated recently and reading rooms are provided. The L.M. is granted by examination after a six months' course. Fees for Intern students: one month £6 6*s*., months other than the first £4 4*s*., three months £12 12*s*., six months £21. Special gynæcological class £2 2*s*. per month. For further particulars apply to the Master, Dr. Bethel Solomons, F.R.C.P.I.

COOMBE LYING-IN HOSPITAL AND GUINNESS DISPENSARY FOR THE TREATMENT OF DISEASES PECULIAR TO WOMEN, Dublin.—This hospital contains 70 beds and consists of two divisions, one of which is devoted to lying-in cases and the other to the treatment of diseases peculiar to women. Lectures are delivered, practical instruction given, and gynæcological operations are performed in the theatres daily. There is a general dispensary held daily, at which instruction is given on the Diseases of Women and Children. There is a special afternoon dispensary held by the Master and his assistants, at which practical instruction in gynæcology is given. There is no extra charge for attendance at this Dispensary. A deep therapy X ray apparatus has been installed for the treatment of malignant cases. There is accommodation for intern pupils, who enjoy exceptional advantages of acquiring a thorough knowledge of this branch of their profession. Women students can reside in the hospital. Clinical assistants are appointed from amongst the pupils as vacancies occur. Certificates of attendance at this hospital are accepted by all licensing bodies. Students can enter for attendance at any time, but preference is given to those entering from the first day of the month. Further particulars may be had on application to the Master or the Registrar at the Hospital.

NATIONAL MATERNITY HOSPITAL, Holles-street, Dublin.—Established 1894. The hospital consists of Intern and Extern Maternity, Gynæcological Wards, and a Dispensary for the treatment of Diseases of Women and Children and an antenatal and post-natal branch. Every facility is given for the carrying out of practical work. Undergraduate and post-graduate courses are arranged at any time. Certificates of attendance at this hospital are recognised by all the licensing bodies. Clinical lectures are given daily and Oral lectures four times per week. The L.M. Diploma is given by special examination, which is held three times a year. Further particulars can be obtained from the Master or from the Secretary, Holles-street, Dublin.

ST. VINCENT'S HOSPITAL AND DISPENSARY, Dublin.—Established 1834. 200 beds. Clinical Lectures in Medicine and Surgery are held from October to June. Special classes for Juniors from October to December. Pathological and Bacteriological Demonstrations are given every Thursday, and instructions in the use of Laryngoscope and Otoscope for Senior students every Saturday. Medals and Prizes: the Bellingham gold medal in Medicine and the O'Farrell gold medal in Surgery are offered for competition at the end of the summer session, as well as junior prizes, also the Surgeon McArdle Prize, value £20. In the last term there was opened a new External Department and a new Pathological Laboratory. Dr. Meenan, Hon. Secretary, 28, Fitzwilliam-square.

WE take this opportunity of thanking the officials of Government Departments and the Deans and Secretaries of the various institutions for their kind coöperation in enabling us to bring the information contained in our Students' Number up to date.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXVIII.

TREATMENT OF DISORDERS ASSOCIATED WITH EXAMINATIONS.

IT is the aim of every student faced with an examination to have all mental processes working at their maximum efficiency. There are several disorders of mind and body which may impair such efficiency and these can to a certain extent be prevented or avoided by judicious forethought. The processes concerned with the association of ideas are probably the most important in relation to examinations, and every candidate relies largely upon this form of mental activity to pull him through. Among a group of candidates there are always some whose difficulty is to get the association process set going, and others who are handicapped by a disability to sort out and set down in some form of order the multiple and complex ideas which flood their minds after reading their questions. Students seem to appeal for advice mostly to those among their seniors whose ordeals by examination are not too remote to be remembered in detail; but often a family practitioner could better help a student whom he has observed under various conditions of stress from childhood upwards. It is not usually difficult to separate those whose association-processes are inhibited by the very sight of an examination paper from those who are over-stimulated at the outset and need steadying. To either group drug therapy may be beneficial, but it must be carefully selected. For the first-named group a drug such as caffeine, which in small doses certainly stimulates the higher centres, is often beneficial taken half an hour or so before a written paper in the form of the effervescing preparation of caffeine citrate (gr. 60) or as a cup of good black coffee. For those whose higher centres tend to work at a feverish activity as soon as they begin to answer questions, alcohol taken immediately beforehand has been suggested. But those who make these suggestions require to have a singular familiarity with the subject's make-up, and those who act on them should know their own physiology with remarkable exactness.

The majority of candidates do not fall into either of these groups, and to them any form of drug-taking will only do harm. The practice of taking small doses of cocaine, prevalent in certain continental centres, is emphatically to be condemned.

Examination Phobia.

Most of the mental distress suffered by examination candidates comes into the category of phobia. The fears connected with written work are not so prevalent as those associated with viva voce examinations and can to a large extent be eliminated by working through questions without the help of books and keeping strictly to the time-limits usually allowed. This has the additional advantage that if sufficient old papers be worked through most of the questions met in the actual examination will have been answered before. For the fears associated with viva voce examinations preparation by a stern and preferably rude tutor with "ragging" propensities offers the best chance of a cure, but certainly such a tutor should be a private acquisition—as a class teacher he may benefit one student, but he will damage a dozen. In this connexion it should be remembered that the examiner with the rough manner does not necessarily mark lower than his gentler colleague, though there is little foundation for the common belief that the harsh in manner are the soft in action. Examiners make ample allowance for stage fright and usually give border-line candidates the benefit of the doubt. A trial trip, by which is meant taking the examination before the chances of passing are really hopeful, often gives valuable experience to the student, but the practice is to be condemned. It wastes time and vitiates the statistics by which the severity or laxity of the educational tests are estimated.

Revision of Work.

The peculiar muddled condition in which certain candidates find themselves at an examination is best dealt with by a thorough revision of the methods of preparation. For certain individuals cramming during the last week is almost always bad, while for others it is invaluable. This depends to a certain extent on what may be termed the reaction time of memory. Those who find that they can remember facts and figures best a few hours or days after committing them to memory do well to work almost up to the day of the test, glancing quickly through note-books or synopses covering the whole field of the subject of examination. Others, on the contrary, remember best a week or so after revising their work, and these persons will be well advised to slack off in the last week or to take a holiday. Even for the former class a whole day off immediately beforehand spent in quiet recreation will often be of great help, though it is difficult to convince them that this is so. Home worries should be reduced to a minimum before and during an examination. Over-anxious parents do not always realise what harm can be done by letting it be seen that they are worrying over the chances of success. The influence of love affairs appears to vary. Certainly any storms which seem to be inevitable had better either be postponed as far as possible or brought to a climax several weeks before the crucial days.

Diet.

Some candidates take little or no breakfast before an examination and have only starvation rations for lunch. While the eating of heavy meat meals is probably harmful, the free intake of carbohydrates is definitely beneficial and does much to prevent at least the form of headache due to acidosis. The midday meal between two three-hour papers should be the same as that taken on ordinary days with the addition of excess sugar in some form or other—e.g., chocolate. If alcohol is usually taken at lunch it should not be omitted.

Physical Disorders.

On the physical side many of the disorders occurring at examination times are physiological in origin, connected with over-stimulation of the adrenal-sympathetic mechanism. Tachycardia, diarrhœa and vomiting, fainting, frequency of micturition, drynes of the mouth, shaking of the limbs, and the "cold sweat" are the principal manifestations. Unless thes are very marked they can scarcely be regarded a pathological, and only in severe cases can any form o treatment be expected to give relief. Theoreticall drugs or endocrine preparations which stimulate th opposing autonomic nervous system might b expected to do good, but there is not yet sufficien known about such therapeutic measures. Tincture c belladonna (℥ 5) added to a mixture containing fu doses of bromide may do good in very severe case Troublesome vomiting is best relieved by a sedativ such as chloretone (gr. 5 to 10). For diarrhœa one of th opium astringent preparations such as pulv. kino. co (gr. 5 to 10) should be used, or codeine in pill form (gr. ¼ to ½) may be taken the day before the onset i nervous diarrhœa is expected. It will be seen tha the use of medicines like that of alcohol is dictate largely by the subject's own experiences—and eve these may be misleading.

Examination headache and examination sleeples ness are often difficult maladies to treat. For headach on the morning of an examination a combination suc as the well-known one of phenacetin, gr. 10, an caffeine citrate, gr. 5, will often give relief witho leaving any depressant after-effects. For sleeplessne a hot drink last thing at night with or without th addition of a little alcohol—very useful for th worrying type—and a dose of aspirin is often sufficien In severe cases of insomnia bromural, gr. 5, and adali gr. 5, are useful as hypnotics which do not usuall produce drowsiness on the following day.

Certain common affections may be present at th time of an examination and their routine treatmer may have to be modified to suit the situation. A attack of migraine may completely overcome candidate, who had better retire from the examinatio if such attacks are usually severe; the recurren of attacks may often be effectively stopped, at any ra for a time, by the well-known Gowers's mixture. I milder cases 20 gr. of phenacetin or aspirin or 15 g each of sodium bromide and sodium salicylate ma stave off an attack. In a bad attack of nas catarrh local treatment in the form of a medicate inhalation or menthol ointment will often giv temporary relief, while an irritating cough ca be suppressed by the use of a heroin linctus such a lozenge as one containing 3 gr. each extract of liquorice and ammonium chloride. A mi attack of influenza may be kept to a certa extent under control during an examination b repeated doses of a mixture containing quinin aspirin, and tinct. camph. co., but in severe cases th examination should be abandoned and no risk take The question of the infectivity of this and oth complaints should be borne in mind by the candida who proposes to sit at all costs.

ALAN MONCRIEFF, M.D., M.R.C.P. Lond.,
Medical Registrar, Middlesex Hospital.

GUILD OF ST. LUKE.

THE Guild of St. Luke was founded over 60 yea ago by a few medical students, chiefly to meet the own religious needs. It now makes a wider appe and its membership is open to all students a practitioners of medicine, both men and women, wh are members of the Church of England, the cler of which are eligible as Clerical Associates. Th Chapter meets in every month of each term, and festival service is held yearly at St. Luke's tid usually at St. Paul's or Westminster Abbey. Th year the service will be at the Abbey. Besides th parent Guild, there are a Women's Ward and Hospital Students' Branch in London. There a also a Midland Counties Ward and a Cambridge War Particulars of the objects and activities of the Gui and forms of application for membership can b obtained from the Secretary of the Guild of St. Luk Room B.B., King's College, Strand, W.C. 2.

THE LANCET.

LONDON: SATURDAY, AUGUST 27, 1927.

THE LIFE-LONG STUDENT.

A PERUSAL of the various Students' Numbers of THE LANCET, as they have appeared for more than three-quarters of a century, would afford an illuminating panorama of medical education in its developments throughout the period; and in return for even cursory glances at haphazard specimens of these Numbers there will be obtained pictures illustrative of the principal moves in the construction of the present scheme of training for medical students. In the early Numbers great play was made with the personalities of the staffs—these were the times when apprenticeship to the staffs was the doorway to success. Then the question of the fees paid by the students began to be of great importance, for the value of obtaining medical qualifications was becoming clear to all, and this could only be managed by definite payments for definite instruction by a class whose members were often poor. With the passing of the first Medical Act, the medical curriculum, though only of three years' duration, became standardised, and the advantage of entering the profession through the portal of a particular school became less, as the significance of the right use of a definite period of training became apparent. When this position was reached there was less reason to balance the claims of various schools in various parts of the country on general grounds.

But as, with the progress of medical science, came the lengthening of the curriculum and the multiplication of compulsory subjects, these things were reflected in the Students' Numbers by a recapitulation of the claims of different medical schools to provide the variously elaborated courses of study. When we first attempted to summarise in an educational guide the story of medical education, it was done with the view of placing before the students the main advantages that were offered by particular schools, the practice of those schools and the personalities of the staffs; and the amount of the fees could be used often as a deciding factor in any advice that was offered. Scholarships, bursaries, and prizes were fewer in number, and, being mostly small, the school which had the larger rewards for industry and brains stood out favourably in comparison with other schools. This obtains to-day with less force because of the growing frequency with which the student of the prize-getting class is already endowed before he reaches the medical school proper. The connexion of the medical schools with the universities is a thing of comparatively modern growth, but has led in its train to opportunities for the well-equipped and industrious that were formerly absent. The last phases of change in the medical curriculum have been brought about by many-sided developments in the great medical services, fighting and civilian, state, municipal, and institutional, with their corollaries in the provision of special diplomas and the growth of post-graduate schemes. And thus our annual educational supplement to-day omits many things that have been its salient features in the past in order to render the present with due proportion. Prominence must now be given to post-graduate schemes and to the examinations which guard the special diplomas. The practitioner not only feels the need of maintaining and developing his knowledge, but often desires to specialise in accordance with his bent; for the official medical man a period of intensive study is enjoined. The statement, so frequent in inaugural addresses, that a medical man is always a medical student, no longer depends for its force upon ideal considerations, but is accepted as a fact to be dealt with along practical lines.

But for the simple counsels which we were wont to attempt, directing them to those in pupillary state, there is undoubtedly room, and we welcome a memorandum from the Registrar of the General Medical Council, published last month, which deals with the procedure to be adopted by those who desire to enter the profession of medicine. The notes on the training and on the prospects of the future careers that will be open to the qualified man, written in untechnical language, describe briefly the course of the student as it can be followed through our pages this week. A table is included setting out the expenses of the educational career, and the costs of tuition and examination with an estimate of the sum required for maintenance for the duration of the curriculum. The table is a model of compression, and, indeed, is in places too brief, for the details in respect of some of the licensing bodies and medical schools are absent, though in respect of others they are full and accurate. The memorandum, which makes no claim to be exhaustive, will serve the useful purpose of focusing the minds of parents and guardians on the outstanding facts attending entrance upon the medical career. We believe that "The Conduct of Medical Practice" will be a useful guide throughout the medical life, supplementing the words of the General Medical Council throughout. The memorandum closes with an endorsement of the view that there is no evidence of an excessive supply of medical practitioners of the kind that should deter those who feel drawn towards the medical life from following their desire. The way is hard and long, but with enthusiasm in surmounting early difficulties there will come a joy in facing the greater problems.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A fortnight's course at the Queen's Hospital for Children will begin on Sept. 12th; the fee will be £3 3*s*. On the same date a three weeks' course will begin at the Royal Westminster Ophthalmic Hospital, including special demonstrations and clinical instruction and operations every afternoon (fee £4 4*s*.). For a fortnight from Sept. 19th the Royal National Orthopædic Hospital will hold an all-day course, with lecture-demonstrations in the mornings and operations and out-patient work in the afternoons (fee £2 2*s*.). During the same period there will be an all-day course in medicine, surgery, and the specialties at the Westminster Hospital (fee £3 3*s*. or £2 2*s*. for either week). During October courses will be given on the following subjects: Ante-natal care at the Royal Free Hospital; cardiology at the National Hospital for Diseases of the Heart; diseases of children at the Victoria Hospital and Paddington Green Hospital; diseases of the throat, nose, and ear at the Central London Throat, Nose, and Ear Hospital; electro-therapy at the Royal Free Hospital; gynæcology at the Chelsea Hospital; ophthalmology at the Royal Eye Hospital; tropical medicine at the London School of Hygiene and Tropical Medicine; and neurology at the National Hospital, Queen-square. The first of a series of lectures entitled Practical Hints on Medicine, Surgery, and the Allied Specialties will be delivered on Oct. 17th by Sir Humphry Rolleston, and the series will be continued by other lecturers on Mondays until Christmas. Weekly clinical demonstrations in medicine, surgery, and ophthalmology are to be given at appropriate hospitals. These demonstrations and lectures will be open to all members of the medical profession without fee, and further details will be published later. Copies of the syllabuses for all courses, lectures and demonstrations may be obtained from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1, and will be supplied on publication to those who wish to receive them regularly. The *Post-Graduate Medical Journal* is also obtainable from the Secretary (6*s*. per annum, post free).

Special Articles.

THE ART OF LEARNING ANATOMY.

BY ROBERT D. LOCKHART,
CH.M. ABERD.,
LECTURER ON ANATOMY, UNIVERSITY OF ABERDEEN.

WHILE the world, of necessity, has an eye and an ear for the clock, remarkably few students form and adhere to a time-table for their private work. Each subject should be assessed according to the hours devoted to it in the university curriculum, and private study should be allotted in exact proportion. Many a student rides a hobby upon anatomy to the detriment of physiology, but the athlete times his varied exercises to balance his muscular development, and the best students have a time system.

Anatomy affords ample scope for illustration of the right and the wrong way to set about a course of study, and I propose to consider the manner in which this subject may best be approached.

Dissection.

It is a falsehood to assert there is no royal road in anatomy. Dissection is the royal road and follows a pass through difficult mountains to pleasure and peace of mind. Many students do not follow this pass and waste their energies upon the stony mountain-side. These will never experience the freedom of confidence, and will always be gripped in the toils of the text-book and fogged by dreary descriptions. They will always be a prey to the panic of the eleventh-hour oblivion of memory, when Timothy's nervous housemaids and Treves's abilities in peritonitis will be an inadequate refuge.

Dissection is a handicraft demanding the skilful handling of suitable instruments; there is delight in the use of a sharp scalpel, but the blade may be blunt within an hour, thus wasting work and time. In dissection as in other trades good tools are half the job. Forceps are used continually, and must be well-balanced, responding to slight pressure; fingers ache in a few moments if they have to play the part of a vice and no pleasure can be got from an instrument whose points persist in twisting at the critical moment.

No one can get to grips with his work when one eye is on a new suit and the other on a greasy table; this is the beginning which leads to the survey of somebody else's dissection from a discreet distance. Clothing should be as business-like as possible. The dissecting table, morover, should be kept tidy; a confusion of soaking text-books, scalpels, saws, loose bandages, and wood blocks is not conducive to good work nor even to good thinking.

The hands, again, must be trained. It is not uncommon to find that a student whose manual inefficiency beggars description has feet attuned to the intricacies of time and to a Charleston jugglery that puts his hands to shame. The hands must be kept dissecting; soon they will be learning to palpate and percuss and their owner will to a certain extent depend upon sensations of touch in the diagnosis of diseased from normal states.

Anatomical science has constantly flourished with research upon the living and dwindled with research upon the dead. Therefore the student should study the dead upon the living. The detailed and prolonged examination of his own body ought not to be a haphazard event, but a systematic habit. He should endeavour to locate structures that his book does not describe under surface anatomy; he should draw the surface markings on his own limbs and study the variation caused by movement. Even men in their final year have missed the coracoid process; yet everyone has two, and they can even be seen in a thin person.

Books.

The text-book of practical anatomy, and indeed all anatomical text-books, ought to be read in front of the specimen; each line of the book must be verified by dissection or observation, so that the disposition of the parts becomes so evident that the mind is not taxed to remember. The five years of medical training are worse than wasted, unless they breed a determined conviction to treat all text-books and opinions, no matter whose they are, with no more than mere tolerance until the facts can be observed and the statements verified. There is, therefore, danger in too many books. One book on practical anatomy is necessary to guide dissection and secure the demonstration of the various structures entering into the formation of any one region. But these same structures may traverse several regions and may have intricate origins and terminations on either side of the particular point of dissection; so it is necessary to consult a systematic book dealing in consecutive detail with the disposition of the complete structures. The two books are consulted *pari passu*, the practical becoming a kind of index suggesting the subjects whose continued description will be found in the systematic work. This admits of the use of a brief practical book with a reliable systematic one. Where on the other hand the practical book gives detailed descriptions there is not the same need for close study of a systematic text which may then be used merely to coördinate the practical study. A book without pictures is useless in the absence of dissections.

A sickening feeling is produced by learning a page of Gray's "Anatomy" by heart; the student looks to see how many hundred pages the book contains and wonders whether some serious error of judgment has not been committed in presenting such a solid conglomeration for his assimilation. No wonder he takes the wrong turning and buys a pocket edition. The point that needs emphasis is that whatever book he uses he should regard it as a liability necessitating liquidation. Each word he takes from it must be verified upon the specimen until the knowledge is his very own.

Technical terms are often a source of confusion, and knowledge of Latin and Greek at school does not always mean intelligent appreciation of the names derived from them. The dissecting-room is so foreign to the school-room that it may never occur to the student that the latissimus dorsi muscle is so called because it is the broadest muscle of the back. Who stops to argue why the name of tailor should be applied for the sartorius—instead of the name of tinker, soldier, or sailor? Who remembers that the word tragus, which means a goat, is applied to a part of the ear which often has a little tuft like a goat's beard, beside it? The unbiased beginner may find that at least the principles of the new nomenclature are more intelligible than those of the old.

Reconstruction.

Bones often breed dislike, but they carry the burden of the subject; the whole story literally hangs upon them and they will teach two-thirds of anatomy. The bones of the part being dissected should be at hand; they should be carefully drawn and clothed in their related structures. This drawing is a talent secured by honest trial and is a language in itself. It reveals the accuracy and defects of knowledge in a few moments, while they might be hidden in pages of words. It is useful to test the memory by constructing diagrams, and in the examination-room a good sketch is of the utmost value. Reconstruction of a dissection in plasticine or wax is an even better way of impressing on the mind the disposition of the various structures. This is a method which lends itself admirably to fashioning the soft parts upon the dry skeleton, and though it

akes a good deal of time, it leads to thorough knowledge and self-confidence.

Speed.

Results ought to be commensurate with the time spent in dissection. As soon as the relevant description has been read the student should seize his scalpel and forceps with determination to demonstrate the structure as quickly as possible. Michael Angelo is said to have approached his blocks of marble with definite fury. There is no need to remove the last vestige of fat and fascia when the general disposition is plain and an effort should be made to secure speed. Many students waste nearly all the time they spend in the dissecting-room; there is no activity beneath their cloak of attendance, and their scalpels drum a disintegrating tattoo to the hum of idle words and the destruction of the part.

Lectures and Examinations.

To get the best out of a systematic lecture the student should prepare the subject beforehand—not from a senior's notes but by summarising the text-book—and should then check and supplement his attempt according to the points emphasised in class. This is the way to meet the teacher on an equal footing, with pleasurable anticipation, knowledge, and critical reception, free from the strain of cramped knuckles and missing words.

Examinations are in many ways trying but there is a real endeavour to throw the test upon the teaching curriculum. A preliminary study of previous questions is an admirable training for written papers. The candidate who finds himself stumped by a question should forget his memory and try to reason. Oral examinations are most important. The candidate who knows the answer should be rapid in replying and should say what he knows in an interesting tone with decided conviction. He will lose little for an error made in such a manner, whereas he will get no credit for the low faltering hesitating whisper, even though it is correct. The examiner is testing knowledge of the body. If he asks a muscle's nerve-supply he should be made to see the nerve actually entering the muscle; the name is much less important. If the student does not know the muscles which a nerve supplies, he should take up the nerve and follow each branch to its end and the specimen will speak for itself. The examiner will soon determine that such a candidate is essentially practical and reliant upon his own hands and eyes, and will pass him without a doubt. It is useless to let the face wrinkle with that tip-of-the-tongue-but-won't-come-off expression—the eyes wandering round the room before seeking the ceiling in a final appeal for the nerves to the digastric muscle. The examiner knows the symptoms of text-book memorising with no dissection, and he knows that a student who has learnt in this way is not a safe proposition.

Enthusiasm.

In learning anatomy, as in other pursuits, one of the greatest assets is enthusiasm. This enthusiasm is often damped by a lack of understanding of the importance of the subject. The student should always bear in mind, therefore, that once he has mastered the elementary facts of anatomy and physiology and become conversant with clinical methods he is in ripe condition to argue the steps of diagnosis, and his opinions will have become worth while, for the best opinions are made upon this very foundation. Horsley was teaching and performing delicate experimental operations upon animals long before he was qualified, and Pasteur, a chemist, took probably the foremost place in the making of medical history because of his passion to prove for himself. The medical curriculum becomes extensive for a bird's-eye view, but whoever knows his anatomy on the living body and adheres to principles of physiology, has his equipment in good order. Those who regard anatomy as a yoke, liberation from which is secured for ever by passing the professional examination, are making a dreadful mistake.

NAVAL MEDICAL SERVICE.

IN the Navy the young medical officer sees the world in congenial company and with an assured position, the pay is good, the pensions are commensurate, and the opportunities offered now for scientific work are real, while, if they are taken, promotion awaits the officer on grounds of professional merit.

As a result of the recommendations of the Inter-Departmental Committee on the Medical Branches of the Fighting Services, the following changes in the conditions of service have been approved.

(1) *Increase in the Establishment of Surgeon Captains.*—The maximum number of Surgeon Captains authorised to be borne have been increased from 16 to 20. Two Surgeon Captains have been appointed to the R.N. Hospital, Haslar, as Professors of Medicine and Surgery, respectively, on instructional duties connected with the general courses described below. The appointment of Director of Medical Studies, Naval Medical School, R.N. College, Greenwich, will in future be held by a Surgeon Captain, and a Surgeon Captain has been appointed to the R.N. Hospital, Malta, as second in charge.

(2) *Increase in Specialists' Allowances and Number of Appointments.*—The number of Specialist appointments has been increased from 46 to 60, and the new appointments include Specialist posts in Medicine, Surgery, Radiology, and Hygiene. The allowance payable to holders of Specialist appointments has been increased from 2*s.* 6*d.* to 5*s.* per day.

(3) *Grant of Charge Pay.*—The grant of charge pay will be made as from July 1st, 1926, on the following scale for Medical Officers in charge of hospitals and sick quarters: Surgeon Rear-Admirals and Surgeon Captains, 10*s.* a day; Surgeon Commanders, 5*s.* a day.

(4) *Professional Courses.*—(*a*) *General Courses:* Every Officer below the rank of Surgeon Captain, except when he has just vacated an appointment at a Home Hospital or is due to take his promotion course, will be appointed, if his services can be spared, once in every four years to the R.N. Hospital, Haslar, for a course of instruction of not less than four months' duration in Clinical Medicine and Surgery and allied subjects. At the end of the course, instead of being placed on Unemployed Time, the Officer will be appointed for duty at one of the R.N. Hospitals at Haslar, Chatham, or Plymouth, unless or until he receives an appointment elsewhere. (*b*) *Specialist Courses:* Every Officer selected to hold a Specialist appointment will, provided his services can be spared, undergo a course of not less than six months' duration in his special subject at a civil hospital in London or other teaching centre, and will subsequently undergo a course of three months' duration in that subject every four years while he is employed as a Specialist. (*c*) *Senior Medical Officers' Courses:* The existing Senior Medical Officers' Courses will to a large extent be superseded by the General and Specialist Courses described above, and their number will therefore be capable of reduction without detriment to the professional opportunities in the Service, but the reduction will not be made until the new courses have been in operation for some years. The institution of General and Specialist Courses will necessitate an increase in establishment, and they cannot therefore be put into full operation until this increase has taken place, but the new arrangements will be inaugurated as soon as possible.

(5) *Time in Hospital Appointments.*—An Officer who enters the Service on or after July 1st, 1926, and who has held, for a period of not less than one year before the date of his entry into the Service, a resident appointment as Medical or Surgical Officer in a civil hospital after becoming a qualified medical practitioner, to be eligible, at the discretion of

the Admiralty, to have his seniority antedated by not more than one year, provided that the appointment is one recognised by the Admiralty for this purpose, but this concession will not ordinarily be granted where the interval between the termination of the hospital appointment and the date of entry into the Service exceeds six months. The period of not less than one year in a "resident" appointment may, at the discretion of the Admiralty, include a period of not more than six months spent in a "non-resident" appointment recognised by the Admiralty.

The increase of seniority allowed under the above conditions shall not render an Officer eligible to receive pay before the date of his actual entry into the Naval Service, but the time concerned shall reckon for increase of full, unemployed, and half pay while on the active list, and retired pay or gratuity on retirement or withdrawal, provided, in the case of a gratuity, that the Officer has completed three years' full pay service in the Royal Navy, that is, exclusive of the time spent as Resident Medical or Surgical Officer in a civil hospital.

In the event of a temporary Officer, or an Officer entered for short service (*v. infra*) being transferred to the permanent list on or after July 1st, 1926, he may be granted the above concession, at Admiralty discretion, under similar conditions to those applicable to candidates who may enter the permanent service direct, except that the time shall not count for gratuity on retirement or withdrawal.

A candidate who is over the normal age limits for entry may be entered, notwithstanding, provided that the period of antedate for which he is eligible brings him, if deducted, within the ordinary limits.

Rank of Surgeon Lieutenant-Commander will be granted to surgeons at the expiration of six years from date of entry, and the point upon which stress should be laid is that special promotion can be made in cases of conspicuous professional merit, which is thus placed on a par with general service. Six years later the period of promotion to Surgeon Commander is reached, after the qualifying examination has been passed, when again special promotions can be made for conspicuous professional merit as well as for distinguished service; but promotions are limited in number, save, of course, for gallantry in action. This recognition of professional attainment should prove a very real incentive to progressive scientific work. The same principle prevails in the higher ranks. Promotions to Surgeon Captain and later to Surgeon Rear-Admiral are made strictly by selection, but are confined to officers who prove fitted, both professionally and as administrators, for this rank.

Naval life may lead to opportunities for putting into practice much of what has been learned in the clinical wards of a hospital. Further, the opening for preventive medicine is large and many-sided, while appointments to the large shore establishments enable medical officers to keep their work modern. New chemical explosives, as well as the extraordinary behaviour of common articles under extraordinary conditions of stowage, furnish perpetual problems and surprises for the medical officer. The health lectures which he is bound to deliver will often afford a starting point of work that may develop into great professional interest. Numerous changes have been introduced during the last 20 years into the naval dietary, many of which were the outcome of representations and research by naval medical officers. The work wants carrying on, for much of it has gone to show that the food problem is very complicated. Every medical officer on board ship should make himself acquainted with food values and the human powers of assimilation under varying conditions of work and climate, and here there is ample scope for research. The modern requirements of gunnery and navigation necessitate precision in their use and have made ophthalmology a valuable subject for study in the Navy. The physical training of both officers and men is based on physiological axioms which are peculiarly the field of the medical officer. Lastly, there is the whole field of venereal and tropical disease.

The young medical officer need not be afraid that his work will be without scientific interest if he takes the opportunities offered him.

Conditions of Service.

The rates of pay of the Medical Service are subject to periodical revision in the light of the cost of living, and it is necessary to indicate as closely as practicable the extent and methods of the periodical revision.

In order that students may be under no misapprehension regarding their remuneration should they decide to join the Naval Medical Service, it should be clearly understood that when the pay of naval officers was revised in 1919 it was definitely laid down that 20 per cent. of the rates of full pay, unemployed pay, half pay, and retired pay was to be considered as due to the high cost of living in 1919, and that it should be subject to change periodically either upwards or downwards according as the cost of living rose or fell. The first revision took place in July, 1924, when all the rates were reduced by approximately 5½ per cent.; the second revision took place in July, 1927, when all rates were reduced by ½ per cent.; and further revisions (not necessarily reductions) are due every three years—i.e., in July, 1930, and so on.

The pay of the Naval Medical Service is shown in two tables, one showing the scale introduced in 1919 which is described as the standard rates and of which 20 per cent. is variable, and the other showing the actual scale in force from July 1st, 1924, to June 30th, 1927.

For the time being the regulations for entry by examination into the permanent service are in abeyance, but a short-service scheme providing for transfer to the permanent service has been inaugurated. The regulations for the entry of surgeon lieutenants under this scheme provide for the usual qualifications of registration, good character, physical fitness, and age—the age not to exceed 30 years. The conditions of service are a three years' engagement with an option of a further year, to serve when and where required under the general rules of the service as regards discipline, and to rank with, but after, surgeon lieutenants in the permanent service, and to receive two calendar months' notice of services being no longer required.

As from July 1st, 1927, the pay is £1 4*s*. 10*d*. (standard rate £1 6*s*. 6*d*.) per day or £453 4*s*. 2*d*. (standard rate £483 12*s*. 6*d*.) per annum, while there is a gratuity not subject to variation with the cost of living, on discharge of £8 6*s*. 8*d*. for each completed month of service. All officers during service are accommodated and victualled on the usual service scale or receive lodging money and provision allowance in lieu, at rates subject to periodical revision. The present rates of lodging money and provision allowance are £80 and £55 a year respectively. Unlike permanent officers, medical officers entered for short service are not liable to periods of unemployment on unemployed or half pay or eligible for retired pay in respect of service. If, however, such an officer were invalided for a cause certified by the competent naval medical authority as attributable to the conditions of service, he would be eligible for disability retired pay in lieu of the gratuity on discharge referred to above. Similarly, in the event of his death from a cause attributable to the service his widow and children would be treated in the same manner as the widow and children of an officer on the permanent list. There is an equipment allowance for ordinary uniform of £50, but the officer provides himself with a pocket case of instruments and a stethoscope.

A short-service surgeon lieutenant after six months' service, on application to the Secretary of the Admiralty, may be considered for transfer to the permanent service on a satisfactory report being received

om the senior medical officer of the Squadron, ospital, or Depôt in which he has served or is serving to his professional ability, and a favourable report m his commanding officer as to conduct. Such ndidates must have been under the age of 28 on ning for short service, and officers so transferred ll not be eligible for the gratuities provided. They ll be permitted to count their seniority from date entry for short service for purposes of promotion d for increment of full pay, and similarly they will permitted to count their service from the date of ry for purposes of retired pay, but for purposes retiring gratuity on the permanent officers' scale ir services will be reckoned only from the date of nsfer to the permanent list, this date being that receipt in the ship or establishment in which the cer is serving of the order for his transfer to the manent list. Until that date he will retain his porary rate of pay.

f a short-service lieutenant transfers to the permanent service he will then come under the following nditions of pay and pensions :—

Standard and Present Rates of Pay.

Rank.	Standard rate.				Rate from July 1st, 1927.			
	Year of 365 days.		One day.		Year of 365 days.		One day.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.
g. Lieut. on entry ..	438	0 0	1	4 0	—		1	2 6
After 3 years	529	5 0	1	9 0	—		1	7 4
g. Lieut.-Comdr. on romotion	638	15 0	1	15 0	—		1	12 10
After 3 years	675	5 0	1	17 0	—		1	14 10
g. Comdr. on promotion	821	5 0	2	5 0	—		2	2 4
After 3 years	894	5 0	2	9 0	—		2	6 0
„ 6 „	967	5 0	2	13 0	—		2	9 10
„ 9 „	1040	5 0	2	17 0	—		2	13 6
g. Capt. on promotion	1186	5 0	3	5 0	—		3	1 2
After 3 years	1277	10 0	3	10 0	—		3	5 10
„ 6 „	1368	15 0	3	15 0	—		3	10 6
„ 9 „	1460	0 0	4	0 0	—		3	15 2
g. Rear-Admiral ..	1916	5 0	5	5 0	—		4	18 8
lical Director-General	2500	0 0	—		2350	0 0	—	

On first appointment to the Service, medical officers l receive full pay from date of appointment, but ject to the provisions of Article 1347 of the King's gulations.

Officers of the permanent service are eligible during iods of unemployment for unemployed pay and f pay. The rates of unemployed pay and half pay, l the conditions under which they are granted, are same as in the dental branch and are set forth in ail later in this article.

Flag Allowances.

An allowance of 5*s.* a day in addition to full pay granted to the Senior Medical Officer of a flag-o bearing the flag of a Commander-in-Chief. allowance of 2*s.* 6*d.* a day is granted to the ior Medical Officer of a ship bearing other flags broad pennants.

Standard Rates of Retired Pay.

ompulsory retirement will be as follows :—

i) Surgeon Rear-Admirals retire at the age of 60 with ed pay at the rate of £900 per annum plus £22 per um for each year's service over 27 years counting for ed pay, subject to a maximum rate of £1010 per annum. however, less than 27 years' service counting towards ed pay is rendered, a deduction of £22 per annum is e for each full year wanting to complete that period, ect to a minimum of £790 per annum.

ii) Surgeon Captains retire at the age of 55. Maximum ed pay, £900.

iii) Surgeon Commanders retire at the age of 50. Maxi-n retired pay, £600.

iv) Surgeon Lieutenant-Commanders and Lieutenants e at the age of 45. Maximum retired pay, £450.

Subject to these maxima, the rates of retired pay for Surgeon Captains, Surgeon Commanders, Surgeon Lieutenant-Commanders, and Surgeon Lieutenants are as follows :—

Age on retirement.	Retired pay.	Period of service (years) counting towards retired pay.	(A)		Age on retirement.	Retired pay.	Period of service (years) counting towards retired pay.	(A)	
			Addition.	Deduction.				Addition.	Deduction.
	£ (p.a.)		£ (p.a.)	£ (p.a.)		£ (p.a.)		£ (p.a.)	£ (p.a.)
55	790	24	22	15	47	562	20	15	15
54	765	24	22	15	46	525	20	15	15
53	742	23	22	15	45	487	19	15	15
52	720	23	22	15	44	450	19	15	15
51	697	22	22	15	43	412	18	15	15
50	675	22	15	15	42	375	18	15	15
49	637	21	15	15	41	337	17	15	15
48	600	21	15	15	40	300	17	15	15

(p.a.) = per annum.

(A) Addition for each full year's service in excess of that specified in column 3 or deduction for each full year wanting to complete that period of service—addition or deduction limited to five years in each case.

Twenty per cent. of all the rates of retired pay referred to above is variable with the cost of living, and the rates at present in course of payment are approximately 6 per cent. below those given above.

Medical Officers are eligible to withdraw with certain gratuities on the same scale as for Dental Officers (v. infra).

DENTAL BRANCH.

1. The Naval Dental Service offers similar opportunities to qualified dental surgeons except that higher rank than that of the recently instituted Surgeon Captain (D) is not open to them. They are provided with suitable surgery accommodation equipped with modern appliances and supplied with all material required for their work, and there is every opportunity for them to maintain a high standard of professional skill.

2. Candidates are required to produce certificates of birth, registration, and of character, and must be physically fit for active service anywhere. An outfit allowance of £50 is payable to officers finally entered and commissioned. The rank of Surgeon Lieutenant-Commander (D) is attained on the completion of six years' satisfactory service. Promotions to Surgeon Commander (D) and Surgeon Captain (D) are made strictly by selection from the rank next below and are confined to officers who prove fitted in every respect for these ranks. The present establishment of dental officers is : 1 Surgeon Captain (D), 3 Surgeon Commanders (D), 60 Surgeon Lieutenant-Commanders (D) and Surgeon Lieutenants (D).

3. Provision has been made for candidates who, at the time of passing the examination, hold or are about to hold an appointment as Dental Officer in a recognised Civil Hospital. The time concerned, provided it does not exceed six months, may reckon for increase of full pay while on the active list. Surgeon Lieutenant-Commanders (D) of over two years' seniority will be eligible for a three months' Post-graduate Course while borne on full pay.

4. As in the case of the medical branch, 20 per cent. of the rates of full pay, unemployed pay, half pay, and retired pay introduced in 1919 is considered as due to the high cost of living in 1919 and subject to change periodically either upwards or downwards according as the cost of living rises or falls. The first revision took place in July, 1924, when all the rates were reduced by approximately 5½ per cent., the second revision took place in July, 1927, when all rates were reduced by ½ per cent., and further revisions are due every three years—i.e., in July, 1930, and so on. The following table and paragraphs show the standard rates introduced in 1919, of which

20 per cent. is variable, and the present rates which will operate from July 1st, 1927, to June 30th, 1930.

Full Pay.

Rank.	Standard rate.				Rate from July 1st, 1927.			
	Year of 365 days.		One day.		Year of 365 days.		One day.	
	£	s. d.	£	s. d.	£	s. d.	£	s. d.
Surg. Lieut. (D) on entry..	401	10 0	1	2 0	—		1	0 8
After 3 years	492	15 0	1	7 0	—		1	5 4
Surg. Lieut.-Comdr. (D) on promotion	593	2 6	1	12 6	—		1	10 6
After 3 years	629	12 6	1	14 6	—		1	12 6
„ 6 „	666	2 6	1	16 6	—		1	14 4
„ 9 „	730	0 0	2	0 0	—		1	17 8
Surg. Comdr. (D) on promotion	775	12 6	2	2 6	—		2	0 0
After 3 years	848	12 6	2	6 6	—		2	3 8
„ 6 „	921	12 6	2	10 6	—		2	7 6
„ 9 „	994	12 6	2	14 6	—		2	11 2
Surg. Captain (D) on promotion	—		3	2 6	—		2	18 10
After 3 years	—		3	7 6	—		3	3 6
„ 6 „	—		3	12 6	—		3	8 2
„ 9 „	—		3	17 6	—		3	12 10

On first appointment to the Service, Dental Officers will receive full pay from the date of appointment, but subject to the provisions of Article 1347 of the King's Regulations, 1913.

Dental Officers are eligible for the same rates of lodging and provision allowances as other officers of equivalent rank and are entitled to the same privileges. The rates of half-pay are :—

Unemployed Pay and Half Pay.—A distinction is to be drawn between—

(*a*) Officers awaiting employment.

(*b*) Those who are permitted for private reasons which the Admiralty regard as satisfactory to refuse an appointment or to have their appointment cancelled or who are unemployed at their own request or in consequence of misconduct.

In the former case—

(*a*) Officers are to receive unemployed pay as follows :—

For the first six calendar months full pay of rank (without allowances).

For the next six calendar months :—

Rank.	Standard rate per diem.			Rate per diem from July 1st, 1927.		
	£	s.	d.	£	s.	d.
Surgeon Lieutenants (D)	0	17	0	0	16	0
Surgeon Lieutenant-Commanders (D) ..	1	2	6	1	1	2
Surgeon Commanders (D)	1	7	6	1	5	10
Thereafter :—Half the full pay of their rank and seniority on the Executive Officers' scale, namely :—						
Surgeon Lieutenant (D)	0	8	6	0	8	0
„ „ of 4 years' seniority	0	10	0	0	9	5
Surgeon Lieutenant-Commander (D).. ..	0	15	0	0	14	1
„ „ of 3 years' seniority	0	16	0	0	15	0
„ „ of 6 years' seniority	0	17	0	0	16	0
Surgeon Commander (D)	1	0	0	0	18	10
„ „ of 3 years' seniority	1	2	0	1	0	8
„ „ 6 „ „	1	4	0	1	2	7
„ „ 9 „ „	1	6	0	1	4	5
Surgeon Captain (D)	1	12	6	1	10	7
„ „ over 6 years ..	1	17	6	1	15	3

Unemployed pay will not, however, be granted in cases where an officer is undertaking continuous professional work for which payment is made.

In the latter case, (*b*), Officers may receive half the full pay of their rank and seniority on the Executive Officers' scale.

Periods during which unemployed Full Pay or Unemployed Pay are received will only count as half-pay time—that is, as one-third of full service.

An Officer who is permitted, for private reasons, to decline an appointment, or to have his appointment cancelled will not be entitled to any Unemployed Pay. In such cases, Officers may be placed on Half-Pay.

The conditions of retirement, Widows' Pensions, Leave, &c., are the same as for Medical Officers of equivalent rank and seniority.

Arrangements are also made whereby officers may be allowed to withdraw from the Service after four years' service and receive gratuities on the followin scale :—

Gratuities will be awarded on retirement and withdraw on the undermentioned scale.

Rank.	Gratuity.
	£ s.
Surgeon Lieutenant (D), Surgeon Lieutenant-Commander (D), and Surgeon Commander (D) :	
After 4 years' full-pay service	500 0
„ 8 „ „	1000 0
„ 12 „ „	1500 0
„ 16 „ „	2250 0

ARMY MEDICAL SERVICE.

ROYAL ARMY MEDICAL CORPS.

THE publication of the Royal Warrant of 1926 ha removed many of the grievances of officers of th Corps, and this Service can again be recommende as a career to young medical men. Competitiv examinations for regular commission, which hav been in abeyance for some time, will again be hel half-yearly in January and July. These examinatior in medicine and surgery are entirely of a clinical an practical character, partly written and partly oral.

The regulations for admission giving full detai should be obtained from the Permanent Unde Secretary of State (A.M.D. 1), War Office, Whitehal London, S.W. 1, and carefully studied. A person interview with a representative of the Director-Genera Army Medical Services, is readily obtainable.

The rates of pay and allowances are good; th opportunities of post-graduate study are generou and the work is varied, responsible, and interestin The gratuities after certain periods of service enab an officer should he so desire to leave the Service wit a capital sum large enough to go a long way towar re-establishing himself in civil life, and, further, th knowledge of the world and the comradeship of h fellow officers that he has gained in the Army will l of no small value to him.

New entrants are commissioned in the rank Lieutenant, and the first six months of service a spent on probation, during which time they underg in addition to their Military training at the Roy Army Medical Corps Depôt at Aldershot, a pr batory course at the Royal Army Medical Colle in London in Hygiene, Pathology, Tropical Medicin Military Surgery, Recruiting, the prevention an treatment of Venereal Disease, and the elements Army Administration. At the end of this cours and after qualifying at the necessary examination their commissions are confirmed, and they take the places in seniority according to the total mar obtained at all examinations up to that date. Office Training Corps service with possession of Certificat "A" or "B" (Medical) carry a definite value marks in this total.

An entrant who is holding or about to hold at th time of the entrance examination a resident Hou Appointment at an approved Civil Hospital may l seconded while holding such an appointment up to maximum period of 12 months. A candidate wh has held such an appointment within six months entry may be granted an antedate up to 12 month in respect of the period the appointment was hel This secondment and antedate counts in all respec as commissioned service, except that pay will not b issued for that period.

After a total period of one year's service at hon the young officer goes abroad, probably to India, f his first tour of foreign service. Here he gains h first practical experience of tropical disease an tropical hygiene, and possibly his first experience active service on the frontiers of India. His to abroad lasts five years, with probably six month leave home during that time. On returning home th

A.M.C. officer has the opportunity to decide whether will remain in the Corps or accept the gratuity of 000 after seven years' service, and try his fortune civil life. If he elects to remain, he will, between s eighth and twelfth year of service, undergo a course post-graduate study at the Royal Army Medical llege and the London Hospitals of five months' ration, followed by a course of study of a special bject selected by himself, provided he has shown ecial aptitude in the post-graduate course or during s previous service. During this period of study he mains on full pay, and the fees for the courses are d by the State. When qualified in his special bject, the officer becomes entitled to specialist pay 5*s.* per day when holding a specialist appointment. er this post-graduate course the officer probably ceeds abroad again and promotion to Major idly ensues, and from that time onward the officer eives regular successive increases of pay, and is gible for additional and charge pay as well. The ectorates of Hygiene and Pathology and the pointment of two serving officers as Consultants Medicine and Surgery have been instituted and ve proved a marked success, all these appoint- nts being of the rank of Colonel or Major- neral.

Under these conditions the possibilities for good rkers are very great in the Royal Army Medical ps. There is scope for original research in tropical ease, in preventive medicine, and in bacteriology, well as in the large clinical field open to the specialist Medicine, Surgery or Gynæcology, in Venereal ease, and in Ophthalmology. Child welfare is also lertaken systematically by officers of the Royal ny Medical Corps.

At the same time instruction in administration is tinuous. The Royal Army Medical Corps is entially organised for war, and one of the lessons of Great War was that trained administrators must st to enable the fullest benefit to be obtained from fessional talent. Many appointments carrying ministrative responsibility are open to those officers display capacity for this duty. All officers must prepared to undertake command and to have a wledge of Army administration, especially in war. ually important is the technical training of the n-commissioned Officers and men of the Corps in h "trades" as Trained Nurse, Nursing Orderly, sseur, Radiographer, Operating Room Assistant, boratory Assistant, Hospital Cook, Dispenser, &c. s training is carried out by the Officers and Nursing ers, and opens a large field for those who have lity in lecturing and teaching as well as the power nfluencing men.

Promotion.

Promotion takes place automatically to Captain after 3½ years, and to Major after 12 years' service, provided the officer is qualified and recommended for promotion. Promotion to the higher ranks is by selection from those senior in the rank below, but special promotion by brevet or otherwise is open to officers of the Royal Army Medical Corps.

Additional Pay and Charge Pay for R.A.M.C. Officers.

(1) Officer not above the rank of lieutenant-colonel, while acting as specialist in a post considered by Our Army Council to merit the grant of additional pay, according to subjects or groups of subjects as under.

Operative Surgery, advanced; Medicine; Ophthalmology; Gynæcology and Midwifery; Dermatology, and Venereal Disease. Otology, Laryngology, and Rhinology; Radiology; Anæsthetics; Mental Diseases; Hygiene; Pathology; subjects other than above, at the discretion of Our Army Council, 5*s.* daily.

(2) (*a*) Officer in charge of a hospital.—If the number of equipped beds, as certified by the Deputy Director of Medical Services, exceeds—

50 beds ..	2*s.* 6*d.* daily.	300 beds ..	7*s.* 6*d.* daily.
150 „ ..	5*s.* 0*d.* „	500 „ ..	10*s.* 0*d.* „

Officer in charge of a medical or surgical division of a general hospital with not less than 300 beds—half the above rates.

	Daily. *s.*	*d.*
(*b*) Senior medical officer, Royal Arsenal, not exceeding	10	0
(*c*) Officer in command of the depôt, Royal Army Medical Corps	5	0
(*d*) The senior officer of the Army Medical Services with an army in the field: A rate to be fixed by the Army Council according to the magnitude of the charge.		
(*e*) The officer, if under the substantive rank of colonel, holding the appointment of senior medical officer in a command abroad, or of assistant director of medical services, if the number of soldiers is 1500 or upwards	5	0
(*f*) Adjutant R.A.M.C. Depôt	5	0
(*g*) Adjutant R.A.M.C. (Territorial Army)	2	6

PAY AND ALLOWANCES.

Rank.	Pay per diem.*	Rations.†	Servant.	Married. Lodging.	Married. Fuel and light (average)	Married. Furniture allowance.	Unmarried. Lodging.	Unmarried. Fuel and light (average)	Approximate daily total. Married.	Approximate daily total. Unmarried.	Approximate yearly total. Married.	Approximate yearly total. Unmarried.
	£ *s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	*s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£	£
utenant	1 0 8	1 6	2 0	3 6	1 7	2 0	2 3	1 4	1 11 3	1 7 9	570	506
ptain—	1 5 4	1 6	2 0	4 6	3 4	2 0	3 0	1 10	1 18 8	1 13 8	706	614
After 8 years c.s...	1 8 2	1 6	2 0	4 6	3 4	2 0	3 0	1 10	2 1 6	1 16 6	757	666
After 10 years c.s.	1 10 6	1 6	2 0	4 6	3 4	2 0	3 0	1 10	2 3 10	1 18 10	800	709
jor—	1 15 4	1 6	2 0	4 6	3 4	2 0	4 0	2 7	2 8 8	2 5 5	888	829
After 15 years c.s.	2 0 0	1 6	2 0	4 6	3 4	2 0	4 0	2 7	2 13 4	2 10 1	973	914
After 18 years c.s.	2 2 4	1 6	2 0	4 6	3 4	2 0	4 0	2 7	2 15 8	2 12 5	1016	957
After 20 years c.s.	2 7 0	1 6	2 0	4 6	3 4	2 0	4 0	2 7	3 0 4	2 17 1	1101	1042
ut.-Colonel ..	2 14 0	1 6	2 0	4 6	3 4	2 0	4 6	2 7	3 7 4	3 4 7	1229	1179
After 3 years c.s. s such	2 18 10	1 6	2 0	4 6	3 4	2 0	4 6	2 7	3 12 2	3 9 5	1317	1267
onel	3 5 10	1 6	2 0	5 6	4 6	2 0	5 6	3 0	4 1 4	3 17 10	1484	1421
jor-General ..	4 9 4	1 6	4 0	11 0	5 9	2 0	11 0	4 1	5 13 7	5 9 11	2073	2006

c.s. = commissioned service.

* Pay Warrant rates as amended by A.O. 196/26 less 6 per cent. from July 1st, 1927, vide A.O. of 1927. The Pay rrant rates are subject to revision to an extent not exceeding 20 per cent. according to variation in the cost of living. The t revision takes place from July 1st, 1930.

† Rates of allowances vary from time to time and issues are subject to conditions laid down in the Allowance Regulations.

THE ARMY DENTAL CORPS.

The Corps is administered by the Director-General, Army Medical Services. It is a joint service for the Army and Royal Air Force, and personnel is required to serve under either force and be interchangeable. Officers and other ranks posted for duty with the Royal Air Force will perform their duties under the Regulations of the Royal Air Force for the employment of dental personnel, but the conditions in the following tables apply equally in either force. Promotion is carried out on one general list. Regulations

for admission to the Army Dental Corps should be obtained from the Under-Secretary of State, War Office, and carefully studied.

Retirement and Retired Pay.

The following are the rates of pension and retired pay :—

1. Retired pay will consist of two parts : (*a*) a service element based on the officer's total service ; (*b*) a rank element for the rank from which the officer retires. An officer with less than 20 complete years' service will not be eligible for retired pay.

2. The scale will be as follows, subject to the reduction of 6 per cent. referred to below :—

(*a*) Service element.—£15 a year for each completed year of service as a medical officer.

(*b*) Rank element.—

Rank from which retired.	After completing 1 year's service in the rank.	After completing each additional year's service.	Maximum rank element.
	£	£	£
Major	12	12	120
Lieutenant - Colonel	150	30	240
Colonel	290	50	390
Major-General ..	440	50	540
Lieutenant - General	590	50	690

The retired pay of an officer retiring with less than one complete year's service in the rank from which he retires will be assessed as though he had retired from the rank below.

Maximum rates of retired pay (*a*) and (*b*) together :—

	£		£
Captain and Subaltern ..	300	Colonel	800
Major	450	Major-General ..	1000
Lieutenant-Colonel ..	600	Lieutenant-General	1200

The above rates are those laid down in the Pay Warrant. They have been reduced by 6 per cent. as from July 1st, 1927.

3. Officers with seven and less than 20 years' service as medical officers may be permitted to retire with a gratuity in accordance with the following scale :—

After 7 years' service as a medical officer .. £1000
" 3 " " " in the rank of Major £2800
" 6 years' service as a medical officer in the rank of Major £3500

OFFICERS : *Appointment and Promotion.*

1. Commissions as Lieutenants in the Army Dental Corps may be given to persons duly qualified under regulations approved by the Army Council.

2. An officer shall be eligible for promotion to the rank of Captain on completion of three and a half years' service and to the rank of Major on completion of 12 years' service in the Corps, provided he has previously qualified in such manner as may be prescribed by the Army Council.

3. Promotion to the rank of Lieutenant-Colonel and Colonel to fill the establishments laid down from time to time for those ranks shall be made by selection of the Army Council, provided the officer has previously qualified for promotion to those ranks in such manner as may be prescribed by the Army Council.

4. Appointments are in the rank of Lieutenant, except in cases where service of three and a half years or more has been given as a temporary dental officer, when the rank of Captain will be given. Service as a temporary dental officer will count towards the three and a half years for promotion to captain, and the 12 years for promotion to Major.

Pay.

The following are the rates for officers of the Army Dental Corps :—

	Per diem. £	s.	d.
Lieutenant	0	18	10
Captain	1	3	6
Captain { after 8 years' total service	1	6	4
Captain { " 10 " " "	1	8	2
Major	1	12	10
Major, after 15 years' total service	1	17	8
" " 18 " " "	2	0	0
" " 20 " " "	2	4	8
Lieutenant-Colonel	2	11	8
Lieutenant-Colonel after 3 years' service as such	2	16	4
Colonel	3	3	6

These rates are 6 per cent. below those shown in the Pay Warrant, 1926, as amended by Army Order 196/26. The latter are subject to revision to an extent not exceeding 20 per cent., according to variation in the cost of living. The next revision takes place on July 1st, 1930.

Charge Pay.

The officer in charge of the Dental Laboratories, Aldershot receives charge pay at the rate of 5*s.* a day if holding the rank of Captain, or 2*s.* 6*d.* a day if holding the rank of Major.

Allowances.

The allowances for officers of the Army Dental Corps are at the same rates as for officers of the Royal Army Medical Corps.

Retirement and Retired Pay or Gratuity.

(1) The rates of retired pay will be the same as for officers of the Royal Army Medical Corps.

(2) Voluntary retirement on retired pay will not be allowed until after twenty years' service.

(3) Earlier retirement on gratuity may be allowed :—

After 8½ years' service as a Dental Officer, gratuity of £1000.
" 15 " " " £2000.
" 18 " " " £3000.

(4) Retirement will be compulsory at the age of 55 years except in the case of a brevet-colonel, who will be retired at the age of 57 years.

(5) A lieutenant who has not qualified for promotion shall be called upon to resign on completion of three and a half years' service, and a captain who has not qualified for promotion shall be retired on gratuity on completion of twelve years' service.

The aim of the Corps is the prevention of wastage of man power on account of dental disease or dental deficiency, and, to enable this to be carried out, every recruit is inspected by a dental officer immediately after joining and all necessary treatment carried out. The soldier is re-inspected at least once a year and his dental efficiency maintained at the best standard possible. As recruits are not now enlisted unless they have sufficient natural teeth to enable them to masticate efficiently, it is hoped that the conservative nature of the treatment they will receive will reduce considerably the percentage of artificial dentures required.

INDIAN MEDICAL SERVICE.

THE entry of European medical candidates into the Indian Medical Service practically ceased with the last open competitive examination held in 1915, and it is an open secret that recruitment for the Service had for many years previous not been brisk, with the result that at the present time the Service is weak officered in its higher ranks and notably deficient in the ranks of those who will be called to succeed them. Among the senior and retired officers are many whose work in medicine and the allied sciences has become a household word, for a generation ago the conditions of service were such as to attract men of the greatest promise in the medical schools who were rarely disappointed in a career which, without producing wealth, gave unlimited opportunity for the display of talent in research and administration unfettered by irksome restriction. We may suppose, and it is the view of many senior officers in the Service, that the period of depression is now passing and that the prospect is again bright for those who are fitted in physique and disposition for a medical career in India. Last year's offer of permanent commissions on specially favourable terms to a small number of medical men of European descent who were free to serve forthwith to India met with the desired response and 20 such commissions were granted.

But the new outlook involves frank acceptance of the Indian reform scheme, the essential of which is increasing participation of Indian-born subjects in the government of the country, although, so long as Europeans are employed in the various departments of the Indian Civil Service, nothing is more certain than that there will and must remain European doctors to attend them. Entrants must also be prepared to face the fact that more time will elapse before they can hope to get into civil employ and

t opportunities for private medical practice are what they were. On the other hand, it is reasonably tain that the social effect of Indianisation will not ss hardly on the medical service for the reason that ropean doctors will be chiefly requisitioned in tions with considerable European communities. these communities the equipment and organisation ospitals has been steadily improving and men with fessional ambition will find positions which will isfy their aspirations. On the military side the tion hospital system has rendered the position of dical officers more independent by making team- k possible and permitting of specialisation in ious departments of medicine and surgery. Lastly, se who join now will have unequalled prospect of rancement in a Service which has been so depleted 10 or 15 years or more, and the new terms of vice announced by the Secretary of State for India year assure conditions of pay, pension, and ough much superior to those recently offered.

The New Provisional Regulations.

ompetitive examination remains suspended for present and admission to the Service is on tten application to the India Office. As sound ily health is a first essential candidates may, if y wish it, undergo a preliminary examination by fedical Board which meets weekly at the India ce.

andidates must be under 32 years of age at the time application and possess qualifications registrable Great Britain. Up to the present time officers have n employed both in civil and military departments have been interchangeable between the two. At beginning of his career an officer was employed the military side, which has medical charge of the ian Army. If he remained in military employ he l a post on the staff of a station hospital, or a cialist post, or a post on the administrative staff he army, promotion being on a time-scale up to the k of lieutenant-colonel and by selection to the ranks olonel and major-general. He could, however, if chose, apply, after two years' Indian military ice, to be registered as a candidate for transfer to civil side, from which appointments are made to l surgeoncies, established at the principal civil tres to provide for the medical needs of civil ials and for general medical administrative pur- es and to the specialist services (for example, lic health, bacteriological and research depart- nts, and the professorships at the medical schools). h transfers normally took place after about n years' service in military employment. view, however, of the recommendations of the Commission only military employment can be ranteed to officers entering at the present time, ough they will be eligible for such civil employment may become available as a result of the Lee mission report. Executive medical officers in h civil and military employment may attend sons unconnected with Government service vided their duty admits of it. On the military , however, the opportunities for private practice not great. Service during the war as a medical ombatant officer, or in a position usually filled by officer, counts towards promotion and pension so as the rights of officers who have entered by petition are not interfered with.

Rates of Pay.

he monthly rates of pay for European officers in Service are as tabulated below. The rupee, ay be remembered, is to be stabilised at 1*s.* 6*d.*, ough the instruction has not yet been made tive in India.

nitial rates of pay are based on the assumption that majority of newly appointed officers will be nelors. An officer, when junior, is liable to more uent changes of station than later on in his ice, and he may therefore be put to considerable nse for transfers if he has a family. Officers are married before joining may find difficulty in living within their pay during the first few years of their service. Officers in military employment, when in command or second-in-command of the larger station hospitals, receive special allowances. On the civil side there are public health, bacteriological, research, and professorial appointments carrying special enhanced rates. Special rates of pay are attached to administrative appointments. Officers on appointment receive an outfit allowance of £50.

Rank and service in rank.	Basic pay.	Overseas pay. If drawn in sterling.	Overseas pay. If drawn in rupees.	Year of total service.
	Rs.	£	Rs.	
Lieut.	500	—	150	First
		—	150	Second
		—	150	Third
Captain :—				
1. During first three years' service as Captain.	650	—	150	Fourth
		15	150	Fifth
		15	150	Sixth
2. With more than three and less than six years' service as Captain.	750	25	250	Seventh
		25	250	Eighth
		25	250	Ninth
3. With more than six years' service as Captain.	850	25	250	Tenth
		25	250	Eleventh
		30	300	Twelfth
Major :—				
1. During first three years' service as Major	950	—	—	—
2. With more than three and less than six years' service as Major	1100	—	—	—
3. With more than six years' service as Major.	1250	30	300	Thirteenth and over.
Lieut.-Colonel :—				
1. Until completion of 23 years' total service	1500	—	—	—
2. During twenty-fourth and twenty-fifth years' total service	1600	—	—	—
3. After completion of 25 years' total service	1700	—	—	—
4. When selected for increased pay ..	1850	—	—	—

Note.—Until the completion of 23 years' total service basic pay is regulated according to rank and service in rank (column 1) which, owing to the system of accelerated promotion, may be in advance of the time-scale of promotion. Overseas pay is regulated solely with reference to length of total service (column 5). In addition to grades there are a number of appointments as colonels on Rs.2200 to Rs.2500, according to the appointment held, and as major-general on Rs.2750. The appointment of Director of Medical Services in India, carrying pay at Rs.3200 per mensem, may also be held by an officer of the Indian Medical Service.

Pensions and Allowances.

The rates of pensions are as shown in the table below.

Service.	Rates per annum.	Service.	Rates per annum.
After 17 years ..	£400	After 23 years ..	£620
,, 18 ,, ..	430	,, 24 ,, ..	660
,, 19 ,, ..	460	,, 25 ,, ..	700
,, 20 ,, ..	500	,, 26 ,, ..	750
,, 21 ,, ..	540	,, 27 ,, ..	800
,, 22 ,, ..	580		

Note.—The above rates are subject to revision, upwards or downwards, to an extent not exceeding 20 per cent. in all, on account of a rise or fall in the cost of living, as compared with the year 1919. A deduction of 4½ per cent. on this account has already been made. Nevertheless the full pension of a lieutenant-colonel cannot be cut below the maximum of £700 under the old rules in the case of officers who entered the service before July 1st, 1920.

There are additional pensions not subject to the above reduction ranging from £125 to £350 per annum for officers who have held high administrative appointments as colonels or major-generals.

Officers on appointment are, when possible, provided with passage to India by transport. When such

accommodation is not available passage is provided by private steamer, or passage allowance granted if preferred. The wives and families of officers who are married prior to the date of the officers' embarkation on first appointment will also be given free passage to India. Officers are granted a certain number of return pasages home at Government expense during their career. There are special allowances for officers whilst on study leave.

Further particulars can be obtained on application to the Secretary, Military Department, India Office, Whitehall, London, S.W. 1. Letters should be marked "Recruitment for I.M.S."

ROYAL AIR FORCE MEDICAL SERVICE.

THE Air Council attach great importance to attracting into the Service the best type of medical man, since on the capacity of the Medical Service depends in a peculiar degree the safety and efficiency of the Air Force. The duties of a medical officer in the Air Force include not only the prevention and treatment of those ordinary diseases to which the personnel of any fighting service are liable, but the special study of the mental and physical stresses imposed on the airman in diverse circumstances and climates—a new branch of medicine which still provides considerable scope for research.

As promotion to the higher ranks of the Service is by selection from officers who are eligible by reason of length of service, and as a certain proportion of the higher ranks will be reserved for purely scientific as opposed to administrative appointments, it will be seen that there are excellent prospects for the young medical officer who exhibits ability and energy in scientific research, as well as for those who develop talents for administration.

The work to be done, therefore, has a high professional interest which, combined with good rates of pay and allowances, offers a career for medical men which should prove both attractive and interesting. The life is one which is certain to appeal to the man of wide outlook who desires opportunities for travel, sport, and games, and can find interest and enjoyment in aviation.

His duties will, as a matter of course, give him flying experience as a passenger, which is necessary for the proper study of the medical problems of aviation and for gaining first-hand knowledge of the conditions under which his comrades serve.

The establishment will consist partly of permanent and partly of short-service officers.

An officer will on first entry be granted a sho service commission for a period of three years on t active list (which may be extended to five years the discretion of the Air Council if the officer wishes on the recommendation of the Director Medical Services) and of four years in the Reserve Air Force Officers. Selections for permanent co missions will be made from officers holding sho service commissions, and those who are n selected will be transferred to the Reserve at t expiration of their period of service on the acti list.

For those entrants who desire it the prospect obtaining a permanent commission is approximat an even one. Experience has so far shown that t officers selected have included the great majority those desirous of, and suitable for, retention in t Service; owing to the fact that the short-servi commission with its gratuity after three or five ye is in itself an attraction to many entrants who des to enlarge their experience and outlook from t point of view of subsequently entering private practi or who, on entry, have not made up their minds the adoption of a permanent career in the Service a subsequently find that they would prefer to retu to civil life.

For certain purposes medical officers may allowed to count as service their time spent resident appointments in civil hospitals under certa well-defined and generous conditions.

Officers who have been selected for permane commissions may be permitted to attend for a peri not exceeding nine months a post-graduate cou in general medicine and surgery, tropical and prev tive medicine, and other special subjects. Su permission may be granted at any time when t exigencies of the Service permit during the fi 16 years of service, and when attending these cour officers will receive full pay and allowances.

New entrants into the Royal Air Force Medi Service will be commissioned as Flying Offic (Medical) and will be eligible for promotion to t rank of Flight Lieutenant (Medical) after two ye service. Officers selected for permanent commissio will normally be promoted to the rank of Squadr Leader after ten years' total service. Accelerat promotion may be granted in a limited number cases to officers who show exceptional ability af the completion of eight years' service. Promot within establishment to the rank of Wing Comman will be by selection at any period after 16 years' to service, and that of Group Captain by selection at a period after 22 years' service.

ROYAL AIR FORCE MEDICAL BRANCH: RATES OF PAY AND ALLOWANCES.

Rank.	Pay.* Daily rates. Standard.	Pay.* Daily rates. Current.	Pay.* Per annum (current rate).	Cash allowances at home rates in lieu of quarters, rations, and servant, if not available in kind (per annum).† Married.	Cash allowances at home rates in lieu of quarters, rations, and servant, if not available in kind (per annum).† Unmarried.	Pay plus allowances per annum. Married.	Pay plus allowances per annum. Unmarrie
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s.
Flying Officer	1 4 0	1 2 6	410 12 6	156 12 11	141 8 9	567 5 5	552 1
Flight Lieutenant— ..	1 6 0	1 4 6	447 2 6	206 16 8	159 13 9	653 19 2	606 16
After 2 years as such..	1 8 0	1 6 4	480 11 8	206 16 8	159 13 9	687 8 4	640 5
After 4 years as such..	1 10 0	1 8 2	514 0 10	206 16 8	159 13 9	720 17 6	673 14
Squadron Leader— ..	1 14 0	1 12 0	584 0 0	206 16 8	171 17 1	790 16 8	755 17
After 2 years as such..	1 18 0	1 15 8	650 18 4	206 16 8	171 17 1	857 15 0	822 15
After 4 years as such..	2 0 0	1 17 8	687 8 4	206 16 8	171 17 1	894 5 0	859 5
After 6 years as such..	2 4 0	2 1 4	754 6 8	206 16 8	171 17 1	961 3 4	926 3
After 8 years as such..	2 8 0	2 5 2	824 5 10	206 16 8	171 17 1	1031 2 6	996 2 1
After 10 years as such..	2 10 0	2 7 0	857 15 0	206 16 8	171 17 1	1064 11 8	1029 12
Wing Commander— ..	2 15 0	2 11 8	942 18 4	206 16 8	184 0 5	1149 15 0	1126 18
After 2 years as such..	2 17 0	2 13 6	976 7 6	206 16 8	184 0 5	1183 4 2	1160 7 1
After 4 years as such..	3 3 0	2 19 2	1079 15 10	206 16 8	184 0 5	1286 12 6	1263 16
Group Captain	3 10 0	3 5 10	1201 9 2	282 17 6	255 10 0	1484 6 8	1456 19
Air Commodore	4 0 0	3 15 2	1371 15 10	337 12 6	310 5 0	1709 8 4	1682 0 1
Air Vice-Marshal.. ..	5 0 0	4 14 0	1715 10 0	406 1 3	375 12 11	2121 11 3	2191 2 1

* Except for periods of service under Indian administration. For such periods officers receive pay and allowances at r and subject to conditions authorised from time to time by the Government of India.

† These allowances are issued only when accommodation, fuel and light, rations, and personal attendance are not avail in kind. Normally, provision in kind is available for junior officers. "Married" rates of allowances are payable only to mar officers who have reached the age of 30 or the rank of Squadron Leader. A colonial allowance is granted in certain comma abroad. The rates and general scheme of allowances are liable to revision as circumstances may require.

There will be no competitive examination on entry; ndidates must be under 28 years of age, be British bjects, the sons of British subjects, and of pure ropean descent, be nominated by the dean of a ognised medical school or teaching hospital, and ll be interviewed personally by the Director of dical Services, Royal Air Force, before acceptance. ch candidate must produce :—

. Birth certificate. 2. Medical registration certificate. A declaration containing the following information: Age and place of birth. (*b*) That he is a British subject, son of British subjects, and of pure European descent. That he is ready to engage for general service at home or oad as required. (*d*) The qualifications he is possessed and what medical or other appointments he has held any). (*e*) That he is willing to fly as a passenger whenever led upon to do so.

Each candidate will be required, before acceptance, pass a medical examination to ensure that he ours under no constitutional or mental disease or eases or weakness, nor any imperfection or disability ich may interfere with the efficient discharge of e duties of a medical officer in any climate, in ace or war.

On appointment entrants will undergo an initial rse of eight weeks, during which they will be given truction in the special medical aspects of aviation, e organisation and administration of the Royal Air rce, and the general and special duties to be rformed by officers in the Medical Branch.

In order to avoid the necessity for further examina- ns the position of entrants in order of seniority the Air Force List will be determined at the end the initial course by a system of marking and orts on the actual work done during their truction.

Uniform and Equipment.

Medical officers are required to provide themselves th the uniform, service dress, and mess dress of their nk and with the distinguishing badges of the Royal r Force Medical Branch. The provision of full dress entirely optional at present. An allowance of £50 wards the cost of uniform is made on joining to ndidates who have not had previous commissioned vice in H.M. Forces.

Emoluments.

The emoluments of medical officers of the Royal Air rce are given in outline above. The standard rates pay and retired pay were drawn up on the basis the high cost of living in 1919, and 20 per cent. of ch of the standard rates is detachable and subject alteration either upwards or downwards as the st of living rises or falls. Under this provision e current rates now in force represent a reduction approximately 6 per cent. on the standard rates. e next revision will take effect from July 1st, 1930, d subsequent revisions will be made at intervals three years.

RETIRED PAY.

The minimum period of service qualifying for irement on retired pay is 20 years. Standard rates retired pay are as follows :—

Air Officers.

Air Vice-Marshal .. .. £790 to £1010 per annum.
Air Commodore .. .. £650 ,, £950 ,, ..

The maximum standard rates of retired pay and e compulsory retiring ages for the several ranks e :—

Rank.	Yearly rate of retired pay.	Compulsory retiring age.
	£	
Air Vice-Marshal ..	1010	60
Air Commodore ..	950	57
Group Captain	900	55
Wing Commander ..	600	51
Squadron Leader ..	500	48

Retired Pay of Officers below Air Rank.

Age on retirement.	Standard yearly rate of retired pay.	Years of service.	Addition for each extra year of service.*	Deduction for each deficient year of service.*
	£		£	£
40	300	17	15	15
41	337	17	15	15
42	375	18	15	15
43	412	18	15	15
44	450	19	15	15
45	487	19	15	15
46	525	20	15	15
47	562	20	15	15
48	600	21	15	15
49	637	21	15	15
50	675	22	15	15
51	697	22	22	15
52	720	23	22	15
53	742	23	22	15
54	765	24	22	15
55	790	24	22	15

* Limited to five years.

Gratuities.—A permanent officer allowed to retire before having qualified for retired pay may be granted a gratuity provided he has not less than ten years' commissioned service, namely :—

£1500 if he has 10 but less than 15 years' commissioned service.
£2500 ,, 15 or more than 15 ,, ,, ,,

Short-service officers will be eligible on passing to the Reserve for gratuities on the following scale: £100 for each of the first two complete years of service, £150 for each of the third and fourth complete years, and £200 for the fifth complete year; that is :—

For three years' service on the active list .. £350
For five ,, ,, ,, .. £700

These gratuities will not be payable to officers granted permanent commissions, but their service on a short-service commission will count towards retired pay.

COLONIAL MEDICAL SERVICE.

IN the self-governing dominions, Canada, Australia, New Zealand, the Union of South Africa, and Newfoundland, and territories under their control, such as Papua and the Cook Islands and in the self-governing colony of Southern Rhodesia, medical appointments are made concerning which information can be obtained from the High Commissioners or Agents-General in London; appointments in Egypt and the Soudan are regulated from the Foreign Office; in North Borneo application should be made to the British North Borneo Company, 37, Threadneedle-street, E.C., for appointments; and those in Sarawak are in the hands of H.H. the Rajah. Much valuable information will be found in the "Professional Handbook," Part II., issued by the Oversea Settlement Office, 3 and 4, Clement's Inn, Strand, London, W.C. 2, price 9*d*.

As a general rule, each Colony or Protectorate has its own public service distinct from that of every other; and it is usually only the higher officers who are transferred by the Secretary of State from one Colony to another. There are three exceptions to this rule: (*a*) The West African Medical Staff, which serves Nigeria, the Gold Coast, Sierra Leone, and the Gambia, is one service. (*b*) The East African Medical Service, which serves Kenya, Uganda, Zanzibar, Nyasaland, Somaliland, and the Tanganyika Territory is one service. (*c*) In practice the medical services of the Straits Settlements and the Malay States may be regarded as one, as the officers may be and frequently are transferred from the Colony to the States or vice versa.

The Colonies, Protectorates, and Mandated Territories to which medical officers are appointed by the Secretary of State for the Colonies are (*a*) the West African—viz., Nigeria, the Gold Coast, Sierra Leone, and the Gambia; (*b*) the East African—viz., the Kenya Colony and Protectorate, the Uganda, Nyasa-

land, Somaliland, and Zanzibar Protectorates, the Tanganyika Territory, and Northern Rhodesia; (*c*) the Eastern—viz., Ceylon, the Straits Settlements and Malay States, Hong-Kong, Mauritius, and Seychelles; (*d*) the West Indian—viz., British Guiana, Jamaica, Trinidad, the Windward Islands, the Leeward Islands, Barbados, British Honduras, and the Bahamas; (*e*) Fiji and the Western Pacific, Cyprus, Gibraltar, St. Helena, Bermuda, and the Falkland Islands; and (*f*) Palestine.

In Ceylon, Mauritius, Jamaica, Barbados, the Bahamas, and Bermuda vacancies are practically always filled locally by the appointment of qualified native candidates, or—in the case of some of the higher posts—by transfer from other Colonies. In the Bechuanaland Protectorate, Basutoland, and Swaziland appointments are usually filled locally. Appointments in Malta are all filled locally. Vacancies occur most regularly and frequently in the West African Medical Staff, the East African Medical Service, and the Straits Settlements and Malay States.

All applicants for medical appointments in the gift of the Secretary of State for the Colonies should be between the ages of 23 and 35,[1] and must be doubly qualified; preference will be given to those who have held hospital appointments as house physicians and house surgeons; testimonials to character and professional competence will be required, and every officer before being definitely appointed will be medically examined by one of the consulting physicians of the Colonial Office: Sir William Prout, C.M.G., O.B.E., and Dr. A. E. Horn, C.M.G., 79, Harley-street, London, W. 1; Major-General J. J. Gerrard, C.B., C.M.G., the Royal Hospital, Kilmainham, Dublin; Dr. Foster Coates, 9, Shaftesbury-square, Belfast; and Lieut.-Colonel Glen Liston, C.I.E., I.M.S., 33, Comely Bank, Edinburgh; Applications for such appointments must be addressed to the Private Secretary (Appointments), Colonial Office, 38, Old Queen-street, S.W. 1.

EAST AFRICAN MEDICAL SERVICE.

The Medical staffs of the Kenya Colony and Protectorate, the Uganda, Nyasaland, Somaliland, and Zanzibar Protectorates, and the Tanganyika Territory form one service, the members of which are liable to be posted to any of the Dependencies as the exigencies of the service may require. The preferences of individual officers are, however, taken into consideration as far as possible.

Selected candidates are appointed as medical officers on probation in the first instance for two years, at the end of which period their appointments are made permanent if their service has been satisfactory. Unless the Secretary of State directs to the contrary, they are required to attend a course of instruction at the London or Liverpool School of Tropical Medicine or the University of Edinburgh before taking up their appointments. If such a course is not taken before proceeding to East Africa, they are required to take it during their first leave of absence. Medical officers (but not sanitation officers) are permitted to take private practice at some stations on the understanding that they give precedence to their official duties. It must be understood that additions to their income from this source are not likely to be substantial, and that the privilege is liable to withdrawal at any time.

Officers are provided with quarters free of rent or the Government may provide temporary accommodation, or an allowance in lieu of quarters calculated at 15 per cent. of the initial salary of an officer's appointment may be paid. The salary of a medical or sanitation officer is £600 per annum, rising by annual increments of £30 to £840, and thence by increments of £40 to £920, subject to an efficiency bar at £840. Senior medical officers and seni sanitation officers are paid on the scale £1000 b annual increments of £50 to £1100. Officers wh possess the Diploma in Public Health on entering, who acquire it while in the Service, receive two speci increments in the scale.

Officers of the East African Medical Service a permitted to retire with gratuity, if they wish, inste of waiting to retire on pension as follows: (*a*) Aft nine years' service, of which at least six must ha been spent in East Africa, £1000; (*b*) after 12 yea service, of which at least eight must have been spe in East Africa, £1250. If an officer elects to reti with gratuity he thereby forgoes all claim t pension.

The grades and salaries (apart from ordina medical and sanitation officers) in the medical depar ments are as follows:—

Kenya.—Director of Medical and Sanitary Service £1500; Deputy Director of Medical Service, £1200: Deput Director of Sanitary Service, £1200; Deputy Director Laboratory Service, £1200.

Uganda.—As Kenya.

Tanganyika Territory.—As Kenya.

Nyasaland.—Director of Medical and Sanitary Service £1300.

Zanzibar.—Director of Medical and Sanitary Service £1400; Deputy Director of Sanitary Service, £1200.

Somaliland.—Principal Medical Officer, £1000–£50–£110

Sanitation officers are selected from the ranks medical officers as occasion arises.

ASIA.

Straits Settlements and Federated Malay States.— European medical officers are appointed on t following scale of salaries: $500 per mensem, rising $550 per mensem during three years' probatio then, if they are placed on the pensionable establis ment, rising to $575 per mensem, and thence b annual increments of $25 per mensem to $800 p mensem, with a strict efficiency bar at $600 p mensem. This scale of salaries has been fixed on t supposition that medical officers join the service about the age of 27. Officers possessing the D.P.H receive an additional allowance of $100 per mense

Above the concluding figure of $800 per mense there are certain higher appointments, as follow Principal Civil Medical Officer, Straits Settlements, ar Principal Medical Officer, Federated Malay State $1200 per mensem; Director, Institute for Medic Research, Federated Malay States, Chief Healt Officer, Federated Malay States, and Princip Medical College, Straits Settlements, $1100 p mensem; 12 posts at $1050 per mensem; and posts at $850 per mensem, rising annually by $30 $1000 per mensem.

The following temporary allowances are at prese paid to all officers recruited from Europe in t Government Services of the Straits Settlements ar Federated Malay States: unmarried officers, 10 p cent. of salary; married officers, 20 per cent. salary. Private practice by Government medic officers is not allowed. They may, however, do, ar receive fees for, consultative work, if approved by t Government. Information about general conditio in Malaya is obtainable from the Malay Stat Information Agency, 88, Cannon-street, E.C. 4.

Seychelles.—The chief medical officer receiv Rs. 7000 and fees. There are four assistant Gover ment medical officers, two receiving Rs. 6500, t others Rs. 3000. The Resident Surgeon at the ne hospital at Victoria is provided with free quarters the hospital.

Hong-Kong.—The present establishment of t medical department is: principal civil medic officer, £1000–£50–£1200; five medical officers, £60 £25–£1000; three medical officers of health ar three port health officers, £600–£25–£1000; bacteri logist, £700–£25–£1000; two health officers, £60 £25–£1000, are also attached to the Sanita Department. A temporary allowance on a sca varying with the sterling exchange value of the doll

[1] In the case of East Africa, preference will be given to candidates who are over 25 years of age. In the case of Fiji and the Western Pacific, preference will be given to candidates who are under 30.

t present payable. Salaries are converted locally he rate of 2*s.* = $1. Free quarters are not provided, in certain instances a rent allowance is paid by Government.

AMERICA.

British Guiana.—There are the following posts in medical service of the Colony: one surgeon-eral, £1000–£1200 per annum, with consulting ctice; one medical officer of health, £900; one teriologist, £450–£700 (increment £25), with £50 wance in lieu of fees; 34 medical officers at 0–£25–£700. Some of the senior posts also carry y allowances (varying from £50 to £300 per annum) quarters. All the junior appointments in which rate practice is not allowed carry duty allowances. vate practice is allowed in certain cases.

Trinidad and Tobago.—In Trinidad and Tobago re are over 40 appointments. On appointment rernment medical officers, who are provided with unfurnished quarters, receive salary at the rate 400 per annum with annual increments of £25 ruing from the date of first appointment as super-nerary medical officers, until reaching the maximum 600. An officer appointed to a district receives, addition to his salary, a travelling allowance ying from £100 per annum in a normal district to) per annum, and is allowed private practice, value of which is estimated at from £50 to £800 annum. Officers employed in institution work ive allowances in lieu of private practice varying n £50 (and furnished quarters) to £300. Medical ers having completed 10 years' resident service are sionable at the age of 55.

Windward Islands (Grenada, St. Lucia, St. Vincent). re are over 25 appointments. The chief ical and health officer, Grenada, receives £600–). The chief medical officer, St. Lucia, receives)–£700 plus forage and subsistence allowances; post is pensionable, but private practice is not wed except as a consultant. Most of the remain-appointments are district appointments with right to private practice attached; the salaries by Government vary from £400–£500, and with wances in certain cases. The Governor has power to transfer a medical officer from one id to another. Appointments are pensionable.

Leeward Islands (Antigua, St. Christopher and is, Dominica, Montserrat, Virgin Islands).—There 20 appointments with salaries varying from to £400 of the same nature as in the Windward nds and pensionable. An officer when first out is not appointed to a particular island to the service of the Leeward Islands, with a ry varying from £312 to £400, according to station, the Governor decides as to the district which is to llotted to him. He is liable to be transferred at Governor's discretion to any medical district in Leeward Islands, and in certain districts may be ired to perform magisterial duties. The medical ers receive fees for successful vaccinations, post-tem examinations, evidence at courts of justice, ificates of lunacy, and, in the larger islands, for al certificates. They are also, as a rule, allowed ate practice. The chief medical officer, St. Kitts, ves £700–£25–£750 without private practice.

Antigua.—Medical Superintendent, Holburton pital, and Chief Medical Officer is in receipt of ary of £600, plus £50 as Chief Medical Officer and elling allowance of £25. Fees average £100.

British Honduras.—There are seven medical appoint-ts (besides the post of principal medical officer), salary of $2430 per annum with increments $120 to $3150. Unless they already possess ploma of public health, medical officers are e to be required, before they join the colony, ndergo a course of instruction at a laboratory of ic health or analogous institution. The salary he Principal Medical Officer is $4008, with one ment of $120 to $4128. The value of the dollar proximately the same as that of the United States.

OTHER OVERSEAS APPOINTMENTS.

Fiji.—The Chief Medical Officer receives £1000–£50–£1100; the Medical Superintendent, Colonial War Memorial Hospital, £800–£25–£1000; the Medical Superintendent, Makogai Leper Asylum, £700–£50–£950; the Medical Officer of Health, Suva, £750–£25–£900. There are 12 District Medical Officers who receive £500–£25–£725. All the above, except the Medical Officer of Health, are entitled to free partly furnished quarters or an allowance in lieu thereof. District Medical Officers are allowed private practice on the understanding that their official duties are not neglected. The Chief Medical Officer, the Medical Superintendent, Colonial War Memorial Hospital, and the Medical Officer of Health are allowed consulting practice only. In five districts the Medical Officer is also District Commissioner and receives an additional allowance of from £175 where there is some private practice to £275 where there is none. In the other districts the value of private practice is estimated at from £200 to £600 a year.

Western Pacific High Commission.—The staff in the British Solomon Islands Protectorate consists of a Senior Medical Officer (£650–£750), one District Medical Officer (£550–£650), and one Travelling Medical Officer (£550–£650). Partly-furnished quarters are provided and a local allowance of £50 per annum is paid in respect of resident service in the Protectorate.

In the Gilbert and Ellice Islands Colony there is a Senior Medical Officer (£650–£750) and one Medical Officer (£500–£25–£600). Partly furnished quarters are provided. There is hardly any private practice in the British Solomon Islands Protectorate or the Gilbert and Ellice Islands Colony.

Cyprus.—There is a chief medical officer paid at the rate of £750, rising by annual increments of £25 to £900, and three district medical officers paid at the rate of £500 a year, rising by annual increments of £20 to £600 a year, all enjoying private practice (except the chief medical officer, who is allowed consulting practice only) and receiving 2*s.* per diem forage allowance. There is also a medical officer of health on £600, rising by £20 increments to £720 without private practice; these are the only medical appointments open to English candidates.

Gibraltar.—There is a surgeon of the Colonial Hospital receiving £750, and private practice. There are also two assistant surgeons with a salary of £720 per annum, who are allowed private consulting practice only. Free quarters, unfurnished, are provided for all three officers.

St. Helena.—The colonial surgeon at present receives £550 per annum, fees estimated at about £27 a year, and £30 horse allowance. The assistant colonial surgeon at present receives £500 a year and £30 horse allowance. Private practice is allowed, and such practice, together with the duties of non-Government appointments, is divided between the colonial surgeon and the assistant colonial surgeon in a proportion approved by the Governor. The value of private practice and appointments is estimated at about £536 a year.

Falkland Islands.—There are two appointments. The colonial surgeon is paid at the rate of £600 per annum, with free furnished quarters. The assistant colonial surgeon is paid at the rate of £500 per annum, with an allowance of £50 per annum in lieu of quarters. Private practice is shared between the colonial surgeon and the assistant colonial surgeon. The office of colonial surgeon is pensionable.

Palestine.[2]—The grades and salaries of superior appointments in the Department of Health are: Director, £E.1200, plus £E.200 expatriation allowance. Deputy Director, £E.900–50–1100, plus £E.150 expatriation allowance. Assistant Director (Laboratories), Specialist Surgeon,[3] and five Senior Medical

[2] £1 Egyptian (of 100 piastres) is equivalent to £1 0*s.* 6*d.* sterling, but a new currency is being introduced.

[3] A certain amount of private practice is allowed.

Officers, £E.750–25–950, plus £E.100 expatriation allowance. One Assistant Senior Medical Officer and Government Analyst £E.550–25–750, plus £E.100 expatriation allowance. The remainder of the staff is recruited locally.

LEAVE AND PENSIONS.

Leave and Passages.—Leave of absence in East Africa on full salary is granted in the normal case after a tour of residential service (of not less than 20 and not usually more than 30 months) to an amount of six days for each completed month of residence (or three days when for any reason the officer is not returning to East Africa) exclusive of the periods of the voyages to and fro, for which full pay is also given. Officers serving in certain stations in Kenya and Nyasaland are allowed five (or two and a half) days' leave and in Northern Rhodesia four (or two) days' leave in respect of each month of service instead of six (or three) days' leave respectively. In Somaliland special leave regulations exist which provide for an officer taking leave after a shorter tour of service than in other parts of East Africa. Free first-class passages are provided for the officer on first appointment and on leave, and in certain cases assistance towards family passages is given.

In the Malay Peninsula two months' leave of absence with full salary may be granted in respect of each year's service, and this leave may be accumulated up to a maximum of eight months. Additional leave on half-pay may be granted on special grounds. Up to the end of 1928 free passages are granted on first appointment and on leave, and free passages on first appointment or transfer are granted permanently for officers with salary under £800.

In other Colonies outside Tropical Africa, subject to the necessities of the service, leave of absence on half salary may be granted after a period of three years' resident service without any special grounds. It may be given before the expiration of that period in case of serious indisposition, or of urgent private affairs. In the absence of special grounds, the leave must not exceed one-sixth of the officer's resident service; on special grounds it may exceed that period by six months. In addition to the above, vacation leave on full pay may be granted, if no inconvenience or expense is caused thereby, not exceeding three months[4] in any two years. In British Guiana assisted passages are granted to officers proceeding on leave. British Guiana, Jamaica, and Trinidad officers are allowed to accumulate full-pay leave at the rate of six weeks for each year's service up to six months, exclusive of the period of the voyages to and fro, and no leave of absence may (except in very special circumstances) exceed six months in all unless the officer has served for five years or more without leave, in which case two months on half-pay may be taken in addition to six months' full-pay leave.

On first appointment an officer will, except in the case of a few Colonies possessing Representative Assemblies, be provided by the Crown Agents for the Colonies with free passages to the Colony for himself and his wife and children, if any, not exceeding four persons besides himself. The officer so appointed will be required to execute an agreement binding him to repay the cost of the passage or passages so obtained in the event of his leaving the Government service within three years. An officer taking leave out of the Colony has in most cases to provide his own passages.

Pensions.—East Africa.—Officers on the pensionable establishment retire on attaining the age of 50 years; but they may be retained in the service, with their own consent, for such further period as the Government may recommend. Earlier retirement in the event of ill-health is also provided for. Pension is computed at one-four hundred and eightieth of pensionable emoluments—i.e., salary and value of free quarters[5] in respect of each month's pensiona service—at the time of retirement, subject to average of emoluments for the last three years bef retirement instead of the actual emoluments at time of retirement being taken as the basis calculation in certain circumstances.

Other Colonies.—In most of the other Colonies officer holding a pensionable appointment may allowed in the case of ill-health to retire on a pens after ten full years' resident service; otherwise must have attained the age of 55. For ten full yea resident service fifteen-sixtieths of the average ann salary of the retiring officer's fixed appointments three years prior to retirement may be awarded, which one-sixtieth may be added for each additio year's service; but no addition will be made in resp of any service beyond 35 years. For pension purpo absence on vacation leave counts as full service, a leave on half-pay as half service. In a few cases retiring age is 60 and the pension after ten yea service is ten-sixtieths instead of fifteen. In Straits Settlements and Malay States, an officer m with the consent of Government, retire at age Pensions are calculated on a basis of length of serv in months instead of years.

WEST AFRICAN MEDICAL STAFF.

Applicants for appointment as medical offic or medical officers of health in the West Afri Medical Staff (the higher grades will usually filled by promotion from the lower) must British subjects of European parentage and betw 23 and 35 years of age; preference is given to can dates who are over 25 years of age. Applicants m possess a complete double qualification, and must on the Medical Register. Passages for wives a children are not provided by the Government, houses for the wives of junior medical officers rarely available. Officers are not usually allowed take their wives and young children out with th until they have acquired experience of the lo conditions and have obtained the sanction of Governor. When an officer has obtained permiss to be accompanied by his wife a grant of one-half cost of his wife's passage to and from West Afric made subject to certain conditions.

Candidates whom it is proposed to select appointment will have to be medically examined one of the medical advisers of the Colonial Office in the case of those residing in a Colony, by a medi officer appointed by the Colonial Government), no appointment will be made unless the candidat declared to be physically fit for service in West Afr Candidates are allowed to express a preference any particular Colony or Protectorate, and th wishes in this respect will be borne in mind and as far as possible, but they are liable to be postec the first instance, or transferred afterwards if necess to any other West African Colony or Protectorate the discretion of the Secretary of State. Candida who wish to be posted to Nigeria will probably fin useful to be able to ride. Transfers from Colony or Protectorate to another will be made seldom as possible. Candidates should on no acco apply for, or accept, a West African appointm in the expectation of ultimately being transferred.

Those transferred to pensionable Crown appoi ments elsewhere than in West Africa do not for their claim to pension in respect of their West Afri service on final retirement, provided that they h been members of the staff for at least 12 mon Every officer selected for appointment is required have himself revaccinated before proceeding to W Africa, unless one of the medical advisers of Colonial Office certifies that this is unnecessary.

Instruction in Tropical Medicine.—Every candid selected for appointment will, unless the Secretar

[4] Or, in the case of Fiji and the Western Pacific and the Falkland Islands 4½ months in any three years.

[5] The value of free quarters for pension purposes is take 15 per cent. of the minimum salary of the grade in whic officer is serving at the time of retirement, subject t maximum of £150.

e decides otherwise, be required to undergo a se of instruction either at the London School of iene and Tropical Medicine, Endsleigh-gardens, 7. 1, or at the Liverpool School of Tropical icine, University, Liverpool, or at Edinburgh versity. The cost of tuition will be borne he Government, but candidates must make their arrangements for board and lodging; an vance of £25 a month will be paid to them thly in arrear while they are under instruction, may be continued up to the date of embarkation. h candidate is required to sign an agreement er which he is bound to refund all sums issued as vances and the cost of tuition (1) if he declines to pt an appointment in any of the Colonies or Protectes for which he may be selected; (2) if he fails to in a certificate in regard to progress and efficiency; 3) if he relinquishes the Service for any other on than mental or physical infirmity, or is removed misconduct, within three years of his arrival in t Africa.

at the end of the session there exists no vacancy he Staff to which a candidate can be appointed, ill be placed in a Reserve and granted an allow- at the rate of £200 a year until the occurrence of cancy.

ave of Absence.—European officers in West ca may be granted vacation leave on full salary exceeding in all one week's leave in the United gdom for every completed calendar month of l residential service in West Africa, plus the time ssarily taken on the journey to the United gdom, and, if the officer is returning to West ca for further service, the time necessarily taken he journey from the United Kingdom to the ny. Vacation leave may be granted without any ial grounds after 18 consecutive calendar months of lential service in West Africa. An officer will be required to serve a tour of more than 24 ecutive calendar months' residential service pt in special circumstances; and the Governor grant vacation leave to any officer at any time he has completed 12 consecutive calendar ths' residential service. Vacation leave on full y may also be granted to an officer if he is invalided West Africa after less than 12 consecutive dar months' residential service, and sick leave ull salary may be granted for any period not eding six calendar months.

ppointments and Salaries.—Medical officers for West African Colonies and Protectorates—ely, the Gambia, Sierra Leone, the Gold Coast uding Ashanti and the Northern Territories), and ria (Southern and Northern Provinces)—are ted by the Secretary of State for the Colonies, are on one list for employment and promotion. grades and emoluments of the Staff are at present llows:—

e Director of the Medical and Sanitary Service, Nigeria, ves a salary of £1800 a year, with a duty allowance at rate of £360 a year. The Director of Medical and tary Service in the Gold Coast receives a salary of 0 a year, with a duty allowance at the rate of £320 a The Director of Medical and Sanitary Service in a Leone receives a salary of £1400 a year, with a duty ance at the rate of £280 a year. The Deputy tor of Medical and Sanitary Service, Nigeria, and the ty Director of Sanitary Service, Nigeria, receive salaries 500 a year, with duty allowances at the rate of £300 a The Deputy Director of Medical and Sanitary Service, Coast, and the Assistant Director of Medical and ary Services, Nigeria, receive salaries of £1400 a year, duty allowances at the rate of £280 a year. Assistant tors Medical Service: There are seven appointments is grade, five in Nigeria, two in the Gold Coast. The y is at the rate of £1300 a year, with duty allowance at ate of £260 a year. The Assistant Director of Sanitary ce, Nigeria, the Deputy Director of Sanitary Service in old Coast and the Deputy Director of Sanitary Service erra Leone receive salary at the rate of £1300 a year, duty allowance at the rate of £260 a year. Specialists: number of these appointments is not fixed, officers of anding professional merit being eligible for appointment. The salary is at the rate of £1300 a year, with duty allowance at the rate of £260 a year. After five years' approved service as such, the specialist officer is eligible to receive a salary at the rate of £1400 a year, with duty allowance at the rate of £280 a year. There are at present five officers appointed specialists in Nigeria, three in the Gold Coast, and one in Sierra Leone. Senior Medical Officer: There are twenty appointments of this grade, with salary at the rate of £1000 a year, rising by annual increments of £50 to £1150 a year, and seniority allowance at the rate of £100 a year. The Senior Medical Officer, Gambia, is allowed "staff pay" of £150 a year, in addition to duty allowance, but he is debarred from private practice. Senior Sanitary Officer: There are nine appointments of this grade, with salary at the rate of £1050 a year, rising by annual increments of £50 to £1200 a year, and a duty allowance at the rate of £210 a year. Possession of the Diploma in Public Health is usually required for appointment to this grade. Special facilities are granted to study for the diploma during leave. Medical Officers of Health: There are at present 24 appointments of this grade. The salary scale is the same as that of Medical Officers, except that Medical Officers of Health are granted an initial salary at the rate of £800 a year, together with seniority allowance at the rate of £72 a year and staff pay at the rate of £150 a year, half of which is payable during leave. After three years' service on the maximum of the scale, viz., £960 a year, and on undergoing an approved course of study, Medical Officers of Health are eligible, if unpromoted, subject to the recommendation of the Governor, to be placed on the scale £1000 a year rising by annual increments of £50 to £1150 a year, together with seniority allowance at the rate of £100 a year and staff pay as before. The holders of these appointments are not allowed private practice. Candidates selected for service as Medical Officers of Health must obtain the Diploma in Tropical Medicine and Hygiene of Cambridge, London, or Liverpool as a condition of appointment, and are appointed subject to the condition that, if after a period of service in West Africa they are considered unsuitable to serve in that capacity, they may be called upon to transfer to the medical side. In such cases the officers are given the rate of salary which they would have reached if they had been appointed to be Medical Officers instead of Medical Officers of Health in the first instance. Medical Officer: The salary attached to this grade is at the rate of £660 a year, rising by annual increments of £30 to £720 a year. Then, if confirmed in the appointment, £720 a year, rising by annual increments of £40 to £960, with seniority allowance at the rate of £72 a year. Before passing £800, medical officers are required to take a special course of study for three months. If they obtain satisfactory certificates at the end of the course they draw their further increments up to £960 a year.

A medical officer who has served for three years on the maximum salary of this scale (£960) without obtaining promotion is eligible, if recommended by the Governor, to be placed on the scale £1000–£50–£1150, with £100 seniority allowance (as for Senior Medical Officers).

Special Appointments.—The Director of the Medical Research Institute, Lagos, and the Director of Research, Accra, receive a salary of £1300 a year, with a duty allowance of £260 a year, rising after five years' approved service to a salary at the rate of £1400 a year and duty allowance at the rate of £280 a year. There are a number of appointments for pathologists and bacteriologists in Nigeria and the Gold Coast. The salary and other conditions attached to these posts are similar to those of Medical Officers of Health. Duty allowances, seniority allowance, and staff pay are not pensionable emoluments.

Increments.—Increments to salaries are payable only when the service of an officer during the period of employment qualifying for increment is approved.

Payment of Salaries.—Information as to the payment of officers' salaries or of monthly remittances to persons in England may be obtained from the Crown Agents for the Colonies, 4, Millbank, S.W. 1. All allowances are paid locally.

All officers of the staff, except directors, deputy directors, assistant directors, senior sanitary officers, and a few other officers holding special appointments, are at present allowed to take private practice, provided that it does not interfere with the faithful and efficient performance of their official duties, but it is within the power of the Governor to withdraw

or suspend the privilege in such places and for such periods as he may consider desirable. Private practice does not exist at the majority of stations, and no guarantee can be given that an officer will be posted to a station in which he will be able to practise privately. As a general rule, and subject to the exigencies of the service, stations where there is private practice are allocated to senior members of the Staff.

Pensions and Gratuities.—Pensions and gratuities on retirement are granted in accordance with the law and regulations of each individual Colony.

Fuller information can be obtained from the Private Secretary, Colonial Office, 38, Old Queen-street, London, S.W.1.

SUDAN MEDICAL SERVICE.

This service is responsible for carrying out civil medical and public health duties in the Sudan. The staff consists of :—(*a*) A Director—pay £1500–£1800. (*b*) A Senior Physician and a Senior Surgeon to the Khartoum and Omdurman Civil Hospitals —pay £1200–£1750. (*c*) An Assistant Director and Medical Officer of Health, Khartoum Province—pay £1200. (This post is temporary and the terms and duties are subject to alteration.) (*d*) Twenty-eight "Senior Medical Inspectors" and "Medical Inspectors" who are all British. The pay of the Inspectors commences at £720, and rises, subject to the recommendation of the Director, by five biennial increases to £1080, and thence, after 13 years' service, to £1200. The Senior Medical Inspectors are eligible by selection to the four senior posts. All Medical Inspectors are appointed on probation for two years. If at the expiration of this time they are taken on the permanent service of the Government, the increase of pay is subject to passing such examination in Arabic as may be required by the regulations. (*e*) A number of medical officers trained at one of the Syrian medical schools. (*f*) A number of assistant medical officers, natives of the Sudan, who have been given a purely clinical training in one of the larger Sudan hospitals.

Among the attractions of the service are: *Annual leave* of 90 days for every year's service, which in ordinary circumstances is granted each year, *study-leave* for some definite purpose, and two years granted towards pension to those who have obtained special qualifications and experience. The pension for a medical inspector retiring after 20 years' service is, as a rule, not less than £500 a year. Private practice is limited to a few of the larger towns, but may be carried on so long as it does not in any way interfere with official duties. These duties include acting as consultant to the principal hospitals, and supervising smaller hospitals or dispensaries; initiating and supervising the medical and sanitary work of a province; the medical supervision of schools; the examination of candidates for Government service and pension; and the training of assistant medical officers and native sanitary overseers. In the Khartoum medical school there are opportunities for teaching; the Registrar receives £250 a year, and the other teachers receive remuneration in addition to their pay. The country is developing rapidly and the Medical Department is being enlarged to meet the increased requirements of the service.

Four additional medical inspectors have recently been appointed, bringing the total number up to 28, and there will be further vacancies next year, which will be advertised in THE LANCET as they arise. Candidates must be single, under 30 years of age, and they must have held a resident post, preferably house surgeon, in a large general hospital. They may be required to take out a course of Tropical Medicine in this country before leaving; the fees, in addition to an allowance of £4 15*s.* per week during this period, will be paid by the Sudan Government.

Applications for further information should be made to Dr. T. Dyke Acland, 19, Bryanston-square, W., or to the Deans of the principal medical schools.

WOMEN'S MEDICAL SERVICE FOR IND

AMONG careers open to medical women abroad Women's Medical Service for India deserves hon able mention. This service is open to f qualified medical women of British or In nationality, and with the present amount of Gov ment subsidy the number of medical officers limited to 44. Medical women proceeding to I to join the Women's Medical Service receiv sufficient sum for a first-class passage to India. landing they are posted to one of the larger wom hospitals to gain Indian experience and to learn language. During this period (from six months to years) private practice is not allowed. For a fur period they are appointed to act temporarily medical women on furlough, during which t private practice is allowed. They are then defini appointed to the charge of hospitals. Private p tice is always allowed after the first two years, vided it does not interfere with official duties. only exception is in administrative or educati posts, when an allowance in lieu of practice is gi The amount obtained from practice varies accor to the station, but in most cases it forms a fair addi to the salary, varying from £150 to £1000 a year.

Excellent opportunities for surgery—especi gynæcological—are found in the Women's Med Service. To those who are not keen surgeons op tunities are likely to open in the future in conne with maternity and child welfare; medical wo with administrative ability are also needed for inspection of women's hospitals and other me institutions.

Rates of pay are as follows :—

Years of service.	Overseas allowance per mensem.	Salary per mensem.	Englis equivale per ann
1 to 3	Rs.100	Rs.450	£440
4 to 6	,, ...	Rs.500	£480
7 to 9	,, ...	Rs.550	£520
10 to 12	,, ...	Rs.600	£560
13 to 15	Rs.150	Rs.650	£600
16 to 18	,, ...	Rs.700	£640
19 to 21	,, ...	Rs.750	£680
22 to 24	,, ...	Rs.800	£720
over 24	,, ...	Rs.850	£760

* At rupee value 1*s.* 4*d.*

Furnished quarters are provided, representing additional Rs.150 per mensem.

The cost of living in India is much higher t formerly, but it should be possible for a me woman (with house provided) to meet actual housel expenses for about Rs.200 per mensem, leaving remainder of her salary for dress and personal exper To this must be added the necessary saving to n additional expense for furlough and leave spen the hills.

One month's privilege leave on full pay is gra each year. Furlough on half-pay at the rate of months for every year of service is granted after ev three years. Study-leave on two-thirds pay is gra to the extent of 12 months in the total service. Th is a provident fund to which members of the ser contribute 10 per cent. of their pay. The ser contributes another 10 per cent., which accumulate interest and is repaid on retirement.

Admission to the service is made by selection. C didates in the United Kingdom should apply to Hon. Secretary, United Kingdom Branch of Countess of Dufferin's Fund, care of Major-Gen J. B. Smith, India Office, Whitehall, London.

DONATIONS AND BEQUESTS.—The late Mr. F. Ll of London and Sittingbourne, left, among other bequ £1000 each to the Croydon General Hospital, the Croy Social Service League (upon trust to provide holidays or otherwise for the benefit of, crippled children of Croyd Lord Mayor Treloar's Cripples' Hospital and College, A and Mrs. J. A. Spender, of Chantrey-place, Marden, Kent such public or charitable purposes as she, in her abs and uncontrolled discretion, may think fit).

SPECIAL DIPLOMAS.

DIPLOMA IN TROPICAL MEDICINE.

LTHOUGH a qualification in tropical medicine has been made registrable by statute, a diploma is rded as indispensable for appointments in the nial Medical Service and similar positions abroad. ematic instruction for these diplomas is given at ncorporated Liverpool School of Tropical Medicine nded in 1898) and at the London School of iene and Tropical Medicine, 23, Endsleigh-ens, Euston-road, N.W.

niversity of Cambridge.—The examination for the oma in Tropical Medicine and Hygiene is divided two parts. Part I. is held in Cambridge in l and Part II. in July in London. Candidates Part I. are examined under the same regulations in the same subjects as candidates for the Diploma 'ublic Health, but any qualification in medicine rgery recognised by the proper authority of any try outside the British Dominions may be gnised. The subjects for Part II. are Medicine, ery, and Hygiene in their relation to Tropical ase.

ie examination will be partly in writing, partly and partly practical or clinical (the clinical will be conducted at a hospital for tropical ses, at which cases will be submitted for diagnosis comment). Every candidate who passes the ination to the satisfaction of the examiners will ve from the University a diploma (D.T.M. & H.) fying to his knowledge and skill in tropical icine and hygiene.

rther information respecting the courses of study examinations may be obtained from Mr. J. E. is, Public Health Chemical Laboratory, Cam-ge.

niversity of London.—The M.D. degree may be n in tropical medicine at an examination held e annually, for which a thesis may be submitted.

niversity of Liverpool.—The University grants iploma in Tropical Medicine. At the end ach full course an examination is held by University for its Diploma of Tropical Medi- (D.T.M.), which is open only to those who been through the course of instruction of the ol. The subjects of examination are (*a*) Tropical ology, Parasitology; (*b*) Entomology; (*c*) ical Hygiene and Sanitation; (*d*) Tropical cine, including Ætiology, Symptoms, Diagnosis, Treatment of Tropical Diseases. The advanced se consists entirely of Practical and Clinical oratory Work, given at the laboratory at the ersity. Applications should be made to the n of the Medical Faculty, University of Liverpool.

diploma in Tropical Hygiene (D.T.H.) has tly been established. The subjects of examina- are bacteriology, chemistry (including meteor- y and climatology), entomology, protozoology, helminthology; tropical sanitation (including ary engineering); practical sanitation. Two ersity Fellowships of £100 a year each are open udents of the school, amongst others. Accom- ation for research work is to be had at the ersity Laboratory. The Mary Kingsley Medal warded by the school for distinguished work nnexion with Tropical Medicine.

njoint Board R.C.P. Lond., R.C.S. Eng.—The oma of D.T.M. & H. Eng. is awarded on the ts of an examination held twice yearly, in uary and July. Candidates must possess a trable qualification, and produce evidence of ng attended (1) practical instruction in pathology, ozoology, helminthology, entomology, bacterio- and hygiene in relation to tropical medicine in cognised institution during not less than five ths; (2) clinical practice of a recognised hospital he same period. Conditions of study may be ified in the case of candidates of special experience. Notice of entry to the Secretary, Examination Hall, Queen-square, London, W.C.

University of Edinburgh.—Candidates for the Diploma in Tropical Medicine and Hygiene must be graduates in medicine and surgery of the University of Edinburgh or hold corresponding registrable degrees or qualifications of some other licensing body. The course of instruction is given during the autumn term, October to December, and includes Tropical Hygiene, Bacteriology, Entomology and Parasitology, and Diseases of Tropical Climates (systematic and clinical). Provision is made in the University for instruction in all subjects. The examinations are written, oral, and practical, and are held twice yearly—viz., June and December. Candidates are required on the first occasion of presenting themselves for examination to appear for all the subjects. Candidates who fail to pass the entire examination within a period of 12 months after first appearance are required to reappear for all the subjects. The University is included in the list of Institutions whose courses of instruction in Tropical Medicine may be taken by officers of all Colonial Medical Services on first appointment or during study-leave. Full particulars can be obtained from the Dean of the Faculty of Medicine.

DIPLOMA IN BACTERIOLOGY.

The University of London has instituted an academic diploma in bacteriology, and a full time course covering this diploma will be opened on Oct. 4th by the London School of Hygiene and Tropical Medicine. This course will be held at 6, Gordon-square, London, W.C. 1, pending the opening of the new buildings behind the British Museum which are now under construction. The diploma is open to graduates in medicine, science, or pharmacy of London or of any other approved university. Registered medical practitioners or other non-graduate students who have obtained a qualification and undergone a previous training which in the opinion of the University has fitted them to profit by the instruction may be admitted. The course of study, which extends over an academic year, is divided into two parts, of which the first is concerned with bacteriological principles and with general technique. The second part of the course is to be devoted to bacteriology applied to (1) clinical medicine, (2) hygiene, or (3) industry, at the selection of the candidate.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

The Universities of Cambridge, London, Durham, Leeds, Manchester, Edinburgh, Dublin, National University of Ireland, and the Conjoint Board of the R.C.P. Lond. and R.C.S.Eng. now grant diplomas in psychological medicine under conditions that are fairly comparable in the standard of the tests and in the duration of the courses; the details on these points can be obtained from the various examination bodies.

In London, courses of instruction for the Diploma in Psychological Medicine are given at the Maudsley Hospital, Denmark Hill, which has recently been definitely recognised as a school of the University of London. The course consists of two parts, and is adapted for the diploma of the Conjoint Board, the University of London, or the University of Cambridge.

Maudsley Hospital.—Appointments as clinical assistants are obtainable at the Maudsley Hospital. The holding of such appointments for varying periods satisfies the requirements of the different examining bodies in respect of practical study of mental disorders. The appointments and other facilities for clinical experience are open to qualified medical practitioners apart from the courses of instruction. Inquiries as to lectures should be addressed to the Director of the Central Pathological Laboratory, Maudsley Hospital,

Denmark Hill, S.E.; and as to clinical facilities, to the Medical Superintendent at the same address.

Bethlem Royal Hospital.—A course of lectures and practical instruction for the Diploma in Psychological Medicine, granted by the various universities and the Conjoint Board, is held at Bethlem Royal Hospital, Lindon, S.E., twice annually, during the spring and autumn. The fee for the full course is 15 guineas. Part A or Part B, however, may be taken separately at a fee of 10 guineas per part. In addition to the above, clinical instruction in Psychological Medicine is given at Bethlem Royal Hospital every morning (except Wednesdays) at 11 A.M. The fee for students is 3 guineas for a period of three months' attendance and for post-graduates a fee of 5 guineas for a like period. A reduction is made to those who attend the Diploma Course. House physicians are appointed at Bethlem Royal Hospital for a term of six months, which may be extended. These appointments are made on May 1st and Nov. 1st in each year and the vacancies are advertised in the medical papers. Apartments, complete board, attendance, and laundry are provided and also a salary at the rate of £100 per annum. Clinical assistants are often appointed from time to time for periods of three months or longer. These are non-salaried and non-resident posts, but partial board is provided. The Physician-Superintendent, Bethlem Royal Hospital, will supply further particulars.

University of Edinburgh.—Candidates for the Diploma in Psychiatry must be graduates in medicine and surgery of the University of Edinburgh or hold corresponding registrable degrees or qualifications of some other licensing body. Candidates are required subsequent to the date of graduation or obtaining a registrable qualification to have held (*a*) a resident appointment for one year in a hospital for mental disorders approved by the Faculty of Medicine, or alternatively (*b*) a six months' appointment as defined in (*a*) and six months' practical study of nervous diseases in a special or general hospital approved by the Faculty of Medicine. There are two examinations for the Diploma. Part I. comprises 1. Anatomy of the Nervous System. 2. Physiology of the Nervous System. 3. Psychology and Experimental Psychology. Part II. comprises: 1. Neuropathology. 2. Clinical Psychiatry. 3. Clinical Neurology. 4. An additional subject selected by the candidate from a prescribed list. The examinations are held twice yearly in March and July. Candidates who have held an asylum appointment for a period of five years or more may be exempted from the course of study in one or more subjects of the curriculum. Full particulars can be obtained from the Dean of the Faculty of Medicine.

Dublin University.—A post-graduate diploma in Psychological Medicine is conferred upon registered medical practitioners who have held a resident medical appointment at a recognised institution for the treatment of Mental Diseases for 12 months, or who have held such an appointment for six months and have attended clinical instruction at an approved institution for six months. Candidates must also attend special courses of instruction and pass a special examination. Details can be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

The National University of Ireland and the *Conjoint Board of the Royal Colleges of Ireland* confer a diploma in Psychological Medicine upon similar terms; application should be made to the Registrar of the School of Physic and the Secretary of the Board respectively.

DIPLOMA IN OPHTHALMIC MEDICINE.

Special diplomas in ophthalmic medicine and surgery are issued by two examining bodies.

University of Oxford.—The diploma in ophthalmology (D.O.) is granted to registered medical practitioners after passing an examination, held annually in March, which is open to candidates who have pursued at Oxford a course of study in ophthalmology ove period of at least two months and who have atten a 12 months' recognised hospital course. Furt information regarding these requirements may obtained from the Dean of the School of Medicin

Conjoint Board R.C.P. Lond., R.C.S. Eng.—' Conjoint Board grants the D.O.M.S. after an e mination held in two parts, twice yearly January and July. Part I. comprises anato and embryology of the visual apparatus, physiol of vision, and elementary optics. Part II. compr optical defects, ophthalmic medicine and surg and pathology with special reference to ophthalmol The examination in each case is written, oral, practical or clinical. Candidates may only enter Part II. on completion of a year of special study of o thalmology after obtaining a registrable qualificati

DIPLOMA IN MEDICAL RADIOLOGY AN ELECTROLOGY.

University of Cambridge.—This Diploma is o only to those who hold a medical qualification. includes a course of lectures and practical work Physics (Part I.) and in Radiology and Electrol (Part II.). Attendances at the necessary courses lectures in both subjects, and, in addition, six mon clinical experience in an adequately equipped hosp recognised by the Committee, are essential. whole course of study takes six months, though is likely to be increased in the future, the lectu practical work, and hospital attendance runn concurrently. Two courses of study are now re nised by the University of Cambridge. One co begins in London in October in preparation for examination in Part I. in January and in Part in the following April. The other course begins Cambridge in January in preparation for the exami tion in Part I. in April and in Part II. in July. the Cambridge course three months are spent Cambridge doing the lectures and practical work Part I., attending the lectures in Part II., and atte ing the practice of Addenbrooke's Hospital. remaining three months can be completed at recognised hospital, but special arrangements made for candidates to continue their studies London.

A six months' course is arranged by the Bri Institute of Radiology held entirely in London, is recognised by the University as qualifying for examination, and begins early in October. Fur particulars as to the Cambridge Course can be obtai from Mr. G. Stead, M.A., Cavendish Laborato Cambridge, and of the London Courses from Stanley Melville, at the offices of the B.I 32, Welbeck-street, London, W.

University of Edinburgh.—Candidates for Diploma in Radiology (D.R. Univ. Edin.) must graduates in medicine and surgery of the Univer of Edinburgh or hold corresponding registr degrees or qualification from some other licen body. Candidates are not admitted to the examina for the Diploma until after the lapse of not less t one year from obtaining a registrable qualificat which qualification must be registered before admis to the Examination. The course of study begin October and extends over a period of not less t three terms. The Examination, which is writ oral, and practical, is in two parts: (*a*) Physics, (*b*) Radiology. The Examination is held twice ye —viz., July and October. Full particulars ma obtained from the Dean of the Faculty of Medic

DIPLOMA IN LARYNGOLOGY AND OTOLO

The Conjoint Board R.C.P. Lond., R.C.S. E grants the D.L.O. after an examination held two parts, twice yearly, in June and Decem Part I. comprises anatomy, embryology, and phy logy of the ear, nose, pharynx, larynx, trachea bronchi, and œsophagus. Part II. comprises

cine, surgery, and pathology of the ear, nose, ynx, larynx, trachea and bronchi, and œsophagus, the recognition and use of special instruments appliances. The examination in each case is en, oral, and practical or clinical. Candidates only enter for Part II. on completion of one year ecial study of the diseases of the ear, nose, ynx, and larynx, after obtaining a registrable fication. The fee for admission to each part is neas.

IPLOMA IN TUBERCULOUS DISEASES.

Diploma in Tuberculous Diseases is given by the ersity of Wales. Candidates must possess a cal qualification registrable for practice in Great in and Ireland, and be not less than 25 years of and either (Category A) have held, for a period t less than five years, whole-time appointments ork in tuberculosis; or (Category B) have held istrable qualification to practise for at least one and presented (*a*) a certificate of satisfactory ance of a course of consecutive post-graduate of the clinical and epidemiological aspects of culosis of six months' duration at a recognised ersity, medical school, or hospital where such rse is given; or, alternatively, a certificate of ear's post-graduate work as a whole-time member e staff of a tuberculosis hospital, sanatorium, or nsary approved by the Ministry of Health, signed e representative of the authorities for whom the was performed or by the administrative medical r concerned; (*b*) a certificate of satisfactory ance of a course of consecutive post-graduate ical study of the Pathology and Bacteriology of rculosis of three months' duration at a tubercu- laboratory or a recognised general laboratory e such a course is given; (*c*) a certificate of three hs' satisfactory attendance at a tuberculosis ute or dispensary.

e examination is divided into two parts and the ; £10 10*s*. Applications should be made to the strar of the University, University Registry, ays Park, Cardiff, not later than May 15th.

e Cecil Prosser Research Scholarship, of the value 50 for one year, is awarded triennially for research berculosis.

DIPLOMA IN PUBLIC HEALTH.

E following epitomises the instruction given at us universities and centres of medical education edical men desiring to obtain diplomas in sanitary ce, public health, hygiene or State medicine, is discipline is variously called. Resolutions, ned with a view of ensuring "the possession of a actively high proficiency, scientific and practical, the branches of study which concern the public h," have been adopted at various times by the ral Medical Council. The diploma is registrable he Council, whose rules on the curriculum become ing on the educational bodies concerned. The regulations, which came into force in 1923, d the period of study and postpone the granting diploma until at least two years from qualification.

Joint Board of the R.C.P. Lond. and R.C.S. Eng.—The regulations came into force on Jan. 1st, , which apply to all candidates who have not nenced bonâ-fide study of Public Health in dance with the above regulations before that They are as follows: The Examination sts of two Parts. Part I. will be held in the hs of January and June, and Part II. in months of January and July in each year. lidates may enter for Parts I. and II. separately the same time, but they must pass Part I. before eeding to Part II. The Examination in each will be written, oral, and practical. Part II. include a practical examination in Infectious ases, Food Inspection, and Inspection of selected nises. Candidates who fail to satisfy the Examiners in either part may present themselves again at the next Examination on payment of the same Fees. Candidates intending to present themselves for either part of the Examination must give 14 days' notice in writing to the Secretary, at the Examination Hall, Queen-square, Bloomsbury, London, W.C. 1.

Candidates will be admissible to Examination in Part I. on producing evidence:—

1. Of being in possession of a registrable qualification in Medicine, Surgery, and Midwifery.
2. Of having attended during a period of not less than five months at an Institution recognised by the Examining Board in England, practical instruction in (*a*) Bacteriology and Parasitology (including Medical Entomology) especially in their relation to diseases of man and to those diseases of the lower animals which are transmissible to man, during 180 hours, of which not less than 150 hours have been occupied in practical laboratory work. (*b*) Chemistry and Physics in relation to public health, during 90 hours, of which not less than 70 hours have been occupied in practical laboratory work. (*c*) Meteorology and Climatology in relation to public health, during not less than 10 hours.

Candidates will be admitted to Part II. of the Examination on producing evidence:—

1. Of having been in possession of a registrable qualification in Medicine, Surgery, and Midwifery during not less than two years, of being registered by the General Medical Council, and of having completed the curriculum for the Diploma extending over a period of 12 calendar months subsequent to the attainment of a registrable qualification.
2. Of having attended, after obtaining the registrable Qualification, instruction during not less than 80 hours at an Institution recognised by the Examining Board in England in the following subjects:—(*a*) The Principles of Public Health and Sanitation for not less than 30 hours; (*b*) Epidemiology and Vital Statistics for not less than 20 hours; (*c*) Sanitary Law and Administration (including Public Medical Services) during not less than 20 hours; (*d*) Sanitary Construction and Planning during not less than 10 hours.
3. Of having attended for three months the clinical practice of a hospital for infectious diseases recognised by the Examining Board in England and of having therein received instruction in the methods of administration. The Certificate must state that the candidate has attended on one or more days in each week of the three months, that each attendance was of two hours' duration, with a total attendance of 60 hours.
4. Of having been engaged during a period of not less than six months in acquiring a practical knowledge of the duties, routine and special, of public health administration under the supervision of a Medical Officer of Health, and of having received, from such officer or other competent Medical Officer during not less than three hours on each of 60 working days, practical instruction in those duties and also those relating to: (*a*) Maternity and Child Welfare Service; (*b*) Health Service for children of school age, (*c*) Venereal Diseases Service; (*d*) Tuberculosis Service; (*e*) Industrial Hygiene; (*f*) Inspection and Control of Food; including meat and milk.

The above certificate (4) must be obtained from a Medical Officer of Health who devotes his whole time to public work, or from a Medical Officer of Health of a Sanitary Area having a population of not less than 50,000, or in Ireland the Medical Superintendent Officer of Health of a County or County Borough having a population of not less than 50,000.

University of Oxford.—An examination, conducted partly in writing, partly vivâ voce, and in each subject partly practical, is held in Michaelmas and in Trinity Term in the following subjects:—General Hygiene, General Pathology (with special relation to Infectious Diseases), the Laws relating to Public Health, Sanitary Engineering, Vital Statistics. The examination is in two parts, which may be taken together or separately; but Part I. must be passed either before or at the same examination as Part II.

The First Part of the examination will comprise (*a*) written papers of three hours each in (i.) Chemistry and Physics, and (ii.) Pathology and Bacteriology; (*b*) a three hours' practical and vivâ voce examination in Chemistry and Physics; (*c*) a three hours' practical and vivâ voce examination in Pathology and Bacteriology.

The Second Part of the Examination will consist of the following parts:—(*a*) Two written papers, each of three hours, dealing with General Hygiene (including Sanitary Engineering, Vital Statistics, and

the Laws relating to Public Health); (*b*) a practical and vivâ voce examination in General Hygiene; and (*c*) a three hours' practical and vivâ voce examination in Pathology and Bacteriology.

Candidates in Part I. of the examination will be required to produce certificates (1) of Laboratory Work in Chemistry, Physics, Meteorology, and Climatology as applied to Hygiene, and (2) of having had Practical Instruction in Bacteriology and Parasitology and the Pathology of the Diseases of Animals transmissible to Man.

Candidates in Part II. will produce the following further certificates: (3) of a Practical Knowledge of the Duties, Routine and Special, of Public Health Administration; and (4) of having attended the practice of a Hospital for Infectious Diseases at which opportunities are afforded for the study of the Methods of Administration.

All the above degrees are now open to Women Students, and particulars of Scholarships and Prizes may be obtained from the Principals of the various Ladies' Colleges. The names of candidates for the Diploma in Public Health must be sent to the Assistant Registrar of the University, Clarendon Building, Oxford. Applications for any further information should be addressed to the Dean, Department of Medicine, Museum, Oxford.

University of Cambridge.—Two examinations in so much of State medicine as is comprised in the functions of medical officers of health are held during the year. The examination is divided into two parts and demands proficiency in all the branches of study which bear upon the duties of medical officers of health. The examinations in both parts will be oral and practical, as well as in writing. Candidates may present themselves for either part separately or for both together at their option; but the result of the examination in the case of any candidate will not be published until he has satisfied the examiners in both parts. Marks of distinction will be placed against the names of candidates who have specially distinguished themselves in either (1) Part I. of the examination; or (2) Part II. of the examination. Candidates must before admission to either part of the examination produce evidence of having satisfied the regulations applicable to Part I. and Part II. The examination for Part I. is in April and for Part II. in October.

For Part I. of the examination courses of lectures and laboratory instruction are given in the University on Hygiene, Chemistry, &c., and on Bacteriology and Parasitology. For Part II. the Medical Officer of Health for Cambridge gives courses on Practical Sanitary Administration and in the Administrative Methods of the Infectious Diseases Hospital; and the Medical Officer of Health to the Cambridgeshire County Council, on Sanitary Laws, School Hygiene, Epidemiology. There are also courses by special lecturers in Vital Statistics, Tuberculosis Service, Venereal Diseases Service, Industrial Hygiene, Maternity and Child Welfare. These courses are open to non-members of the University.

A special Diploma in Hygiene is granted to medical graduates whose qualifications are not registrable in England. The courses and examinations are the same as for the Diploma in Public Health (except that the candidates are not examined in English Sanitary Laws).

All applications for further information respecting examinations and the courses of study should be addressed to Mr. Purvis, Public Health Chemical Laboratory, Cambridge.

University of London.—Candidates for the M.D. Degree may offer State Medicine as a subject in which to graduate. The regulations have been revised and may be obtained on application to the Academic Registrar, University of London, South Kensington.

University of Durham.—The Degree of Bachelor of Hygiene (B.Hy.) and the Diploma in Public Health (D.P.H.).—No candidate is admitted to the final examination for the Degree of B.Hy. unless he is a Bachelor of Medicine and Surgery, of not less than two years' standing, of a recognised University, and no candidate is admitted to the final examina for the D.P.H. unless he is a registered med practitioner, of not less than two years' standing. course of study for the B.Hy. and D.P.H. ext over a period of not less than 12 calendar mon subsequent to the attainment of a registrable qu cation. Candidates for the B.Hy. must attend course at the University of Durham; candid for the D.P.H. may attend it at the Universit Durham, or at any medical school or institution w is recognised by the University. The examina for the diploma or degree is divided into two p A candidate must pass in all the subjects of Pa before being admitted to examination for Part In Part I., and also in Part II., a candidate must in all the specified subjects at one time. The exam tion for Part I. is practical, written, and and includes the following subjects: Bacterio and Parasitology (including medical entomolo Chemistry and Physics, and Meteorology and Cl tology, in relation to Public Health. Candidates not admitted to examination for Part I. until they have completed the prescribed courses of ins tion in the subjects thereof. The examinatio Part II. includes Hygiene and Sanitation (compr sanitary construction), Epidemiology and Infec Diseases; Sanitary Law and Vital Statistics; P Health Administration. The examination is wr and oral, and includes practical examination Infectious Diseases, Food Inspection, Inspectio Premises—Dwellings, Factories, Workshops, Sch &c. Candidates are not admitted to examin for Part II. until after they have completed prescribed courses of instruction in the sub thereof. Doctor of Hygiene (D.Hy.): Candi must be Bachelors of Hygiene of two years' stan and are required to satisfy the examiners that have conducted original research in the subje Public Health.

Victoria University of Manchester.—An examin in Public Health is held twice yearly. The examin is in two parts and is written, oral, and prac Candidates may present themselves for Parts I. II. separately or at the same time provided tha candidate be admitted to Part II. unless he has alr passed in Part I. No candidate's name will be lished until he has satisfied the examiners in both of the examination. Every candidate who passed both parts of the examination to satisfaction of the examiners, and who is le registered, will receive a Diploma in Public H The examination will begin about the middle of and the middle of October in each year. Holde the Diploma in Public Health are eligible for exa tion for the Certificates in School Hygiene and Fa Hygiene after attending the prescribed perio study and hospital practice. An examination Diploma in Bacteriology is held for graduat science or medicine who have attended presc courses for at least one academic year; candi must present a satisfactory thesis on an app subject.

University of Birmingham.—Under the re rules and regulations of the General Medical C the University grants a degree of B.Sc. in P Health and also a Diploma in the same su on the following conditions: Graduates in Me of this University may become candidates fo degree of Bachelor of Science in Public H by conforming to all the requirements laid for candidates for the Diploma in Public H except that after graduating in Medicine all c of study must be taken out in the Unive and they must, in addition, have attended a months' course of Geology in the University. A on the Ætiology and Prevention of a Disease of the candidate has made a special study mu submitted on entry for B.Sc. Part II. The examin will be held in the months of March and Oc and will consist of two parts, each part being wi oral, and practical. No candidate will be allow

Part II. until he has passed Part I. Candidates enter for Parts I. and II. separately or at the time. The fee for each part of the examination 5s. Medical Officers of the Royal Navy who have ıded the required course of study at the Naval cal School, Greenwich, will be admitted to Part I. ıinations for the Diploma in Public Health, her they have previously been students at the ingham School or not; and the same applies to rs of the Royal Army Medical Corps who have ed at the Staff College. Medical Officers of the y and Army are admitted to Part II. Examination .H.) on complying with the requirements laid ı for attendance upon Courses of Study. These ses need not necessarily be attended in the ersity of Birmingham.

iversity of Liverpool.—The University grants a ee in Hygiene (M.H.) and a Diploma (D.P.H.), every facility is afforded for training in Sanitary ce and State Medicine. The curriculum for the ee extends over a period of two years, the first hich is devoted to laboratory instruction and ical classes (including those for the Diploma); second being devoted to advanced study and rch. The courses may be taken at any time, students are allowed to work daily in the atories.

iversity of Leeds.—The University grants a oma in Public Health, and every facility is ded for training in Sanitary Science and State cine. The examination, which is held twice in year—namely, in June and December—is in parts, and is written, oral, and practical. Can- es must pass in Part I. before being admitted to II. Instruction in Entomology and Meteorology en in the first term, and in Sanitary Chemistry Bacteriology in the second and third terms. ical work under arrangement with the Leeds Council. Prospectus can be obtained from the emic Sub-Dean of the Medical School.

iversity of Bristol.—Diploma in Public Health. idates must be at least 23 years of age, shall be registered medical practitioners of not less than years' standing as such, and shall have passed examination prescribed by regulation. The ination is divided into two parts.

iversity of Wales.—Candidates for the Diploma ıblic Health, the curriculum for which extends a period of not less than twelve calendar months quent to the attainment of a registrable qualifi- n, must produce evidence of having attended ot less than five months at the Welsh National ol of Medicine or at an institution approved by ourt, practical instruction in Bacteriology and sitology, Chemistry and Physics, and Meteorology limatology in relation to Public Health. Candi- must satisfy the examiners that they have ved instruction approved by the University in Principles of Public Health and Sanitation, emiology and Vital Statistics, Sanitary Law Administration, and Sanitary Construction and ning. The candidate must also produce evidence he has attended for three months on the clinical ice of a hospital for infectious diseases con- ng not less than 100 beds, and has received therein uction in the methods of administration, and that us for a period of not less than six months been ged in acquiring a practical knowledge of the s, routine and special, of a public health nistration under the supervision of a medical r of health. The examination for the diploma ided into two parts, Part I. and Part II., each of n extends over not less than two days. A candi- must pass in all the subjects of Part I. before admitted to Part II. of the examination. In I., and also in Part II., a candidate must pass the specified subjects at one time. Part I. of the ination is practical, written and oral, and comprises eriology and Parasitology (including Medical mology); Chemistry and Physics, and Meteoro- and Climatology in relation to Public Health. Candidates may not be admitted to Part I. of the examination until they have been certified as having pursued the prescribed courses of instruction in the subjects thereof. Part II. of the examination, which is written and oral, comprises: Hygiene and Sanitation (including Sanitary Construction); Epidemiology and Infectious Diseases; Sanitary Law and Vital Statistics; Public Health Administration. No candidate can be admitted to Part II. of the examination until after the lapse of not less than two years from the date of his obtaining a registrable qualification in Medicine, Surgery, and Midwifery, which qualification must be registered before admission to Part II. of the examination. An examination in each part will be held annually. The examination in Part I. will be held in June, that in Part II. in October. Full information from the Registrar of the University, University Registry, Cathays Park, Cardiff, not later than May 15th for the examination in Part I. and not later than Sept. 1st for the examination in Part II.

University of Edinburgh.—Candidates for the Diploma in Public Health must be graduates in medicine and surgery of the University, or hold corresponding degrees or registrable medical qualifications which must be registered before admission to examination. The course is divided into two parts for which examinations are held twice yearly, in March and July for Part I., and in October and December for Part II. In each part the candidate must pass in all the specified subjects at one examination. Candidates are not admitted to Part II. until they have passed Part I., nor until after the lapse of not less than two years from the date of obtaining a registrable medical qualification. The subjects of the examination are: Part I. (written, oral, and practical), Bacteriology; Medical Entomology and Parasitology; Chemistry, Physics, Meteorology, and Climatology. Part II. (written, oral, and practical), Hygiene, Sanitation, and Sanitary Construction; Epidemiology and Infectious Diseases; Sanitary Law and Vital Statistics; Public Health Administration. There is also included practical examinations in Infectious Diseases, Food Inspection, and Inspection of Premises. The course, which extends over a period of 12 calendar months, begins in October, and provision is made by the University for instruction in all the subjects. Detailed particulars may be obtained from the Dean of the Faculty of Medicine.

University of Aberdeen.—Every candidate for the Diploma in Public Health must be a graduate in medicine of the University of Aberdeen, or of any other University whose medical degrees are recognised as qualifying for registration by the General Medical Council of the United Kingdom. No candidate will be admitted to the Final Part of the Examination for the Diploma until after the lapse of not less than two years from the date of his obtaining a registrable qualification in Medicine, which qualification shall have been registered before such admission. The whole of the prescribed curriculum of study must be undertaken after the candidate has obtained a registrable qualification in medicine, and shall extend over not less than twelve calendar months. At least one academic term must be spent at the University of Aberdeen. Every candidate shall produce evidence of having complied with the following requirements in respect of study and training:—1. Practical instruction in the following subjects within a laboratory or laboratories approved by the University: (*a*) Bacteriology and Parasitology (including Medical Entomology), in relation to diseases of man and diseases of lower animals transmissible to man—at least 180 hours, of which not less than 150 shall be occupied in practical laboratory work; (*b*) Chemistry and Physics, in relation to Public Health—at least 90 hours, of which not less than 70 shall be occupied in practical laboratory work; (*c*) Meteorology and Climatology, in relation to Public Health—at least 10 hours; such instruction to extend over not less than five months or two academic terms. 2. A course or courses of

instruction extending over not less than 80 hours dealing with: (*a*) The Principles of Public Health and Sanitation—30 hours; (*b*) Epidemiology and Vital Statistics—20 hours; (*c*) Sanitary Law and Administration (including Public Medical Services)—20 hours; (*d*) Sanitary Construction and Planning—10 hours; such course or courses to be given at an institution or by a teacher or teachers approved by the University. 3. Practical instruction, clinical and administrative, within a recognised hospital for general infectious diseases; such instruction to extend over three months, and to include 30 daily attendances of not less than two hours in each week. 4. Practical instruction and experience, during not less than six months (including attendance of at least three hours on each of sixty working days) in the duties, routine and special, of public health administration, under the supervision of a medical officer of health, who shall certify that the candidate has received from this officer or other competent medical officer, practical instruction in these duties, and also in those relating to: (*a*) Maternity and Child Welfare Service; (*b*) Health Service for Children of School Age; (*c*) Venereal Diseases Service; (*d*) Tuberculosis Service; (*e*) Industrial Hygiene; (*f*) Inspection and Control of Food, including meat and milk. The medical officers of health recognised for this purpose by the General Medical Council are: (*a*) a medical officer of health who devotes his whole time to public health work; or (*b*) the medical officer of health of a sanitary area having a population of not less than 50,000; or (*c*) in Ireland, the medical superintendent officer of health of a county or county borough having a population of not less than 50,000. The examination for the diploma is divided into two parts, each of which extends over not less than three days.

University of Glasgow.—Degree of B.Sc. in Public Health.—Candidates must be graduates in Medicine of a University of the United Kingdom, or of some other University recognised for the purpose by the University Court. Candidates must produce evidence (1) that, after they have obtained a registrable Degree in Medicine, a period of not less than two years has elapsed; (2) that, after they have obtained a registrable degree in Medicine, they have, during a period of not less than 21 calendar months, pursued the course of work and instruction prescribed, and have satisfied the examiners in the prescribed examinations. There are two examinations. Part I. includes the following subjects: (i) Bacteriology and Parasitology (including Medical Entomology); (ii) Chemistry and Physics in relation to Public Health; (iii) Meteorology and Climatology in relation to Public Health; (iv) Higher Chemistry in relation to Public Health; (v) Physics and Geology. A candidate must pass in the subjects marked (i), (ii), and (iii) of Part I. at one examination. Part II. includes the following subjects: (vi) Hygiene and Sanitation (including Sanitary construction); (vii) Epidemiology and Infectious Diseases; (viii) Sanitary Law and Vital Statistics; (ix) Public Health Administration; (x) Applied Hygiene. The examination for Part II. includes practical examinations in Infectious Diseases; Food Inspection; Inspection of Premises, such as dwellings, factories, workshops, schools, and the like. The examination in Applied Hygiene may be on a selected subject professed by the candidate. A candidate must pass in the subjects marked (vi), (vii), (viii), and (ix) of Part II. at one examination. *Diploma in Public Health (D.P.H.).*—Candidates for this Diploma must be legally qualified medical practitioners who are matriculated students of the University. A period of not less than two years must elapse between the attainment by the candidate of a registrable medical qualification, and his admission to the final examination (Part II.) for the Diploma. The candidate must, during a period of not less than 12 calendar months, subsequent to his attainment of a registrable medical qualification, pursue the course of work and instruction prescribed, and pass the prescribed examinations. The examination, which is both written oral, is divided into two parts, Part I. and Part each of which extends over not less than two d No candidate is admitted to either part of the ex nation until he has completed the prescribed co of instruction in the subjects of that part. candidate is admitted to Part II. until he has pa in all the subjects of Part I., nor until after the l of not less than two years from the date of his ob ing a registrable medical qualification, nor u he presents a certificate showing that his name qualification have been duly registered in the Me Register. Part I. includes: (i) Bacteriology Parasitology (including Medical Entomology); Chemistry and Physics in relation to Public Hea (iii) Meteorology and Climatology in relatio Public Health. A candidate must pass in all subjects at one examination. Part II. inclu (iv) Hygiene and Sanitation (including Sani Construction); (v) Epidemiology and Infect Diseases; (vi) Sanitary Law and Vital Statis (vii) Public Health Administration. A candi must pass in all the subjects at one examina The examination for Part II. includes prac examinations in Infectious Diseases; Food In tion; Inspection of Premises, such as dwell factories, workshops, schools, and the like.

University of St. Andrews.—The Diploma Public Health is open to those who hold a regist medical qualification of the United Kingdom. examination is in two parts. (1) (*a*) Bacteriology Parasitology; (*b*) Chemistry and Physics; (*c*) Mete logy and Climatology. (2) Public Health and Sanita Epidemiology and Vital Statistics, Sanitary Law Administration, and Sanitary Construction Planning. Before admission to the first examina the candidate must have held his medical qualifica for one year, and before admission to the se examination for two years. Graduates in Med of the University of St. Andrews may take pa all of the qualifying classes in any University o United Kingdom, or in any Indian, Colonial, or For University or medical school recognised by University Court, but holders of other regist medical qualifications must spend at least eight of the 12 months' curriculum in St. Andrews Un sity. A complete course is given in the Con Medical School, Dundee. The examination fe each division is £5 5*s*.

University of Dublin (Trinity College).—The Dipl in Public Health is conferred, after examination, u the following conditions. The candidate must registered medical practitioner and have obtain registrable qualification at least two years b the second part of the examination. The candi must have completed, subsequently to obtainin registrable qualification, five months' prac instruction in a chemical and bacteriological lab tory, or laboratories, approved by the Univer must have received instruction in the follo subjects: the principles of public health and tation, epidemiology and vital statistics, san law and administration (including public me services), sanitary construction and planning; have studied, practically, outdoor sanitary work six months under an approved officer of health, must have attended for three months at a hospital where opportunities are afforded for study of methods of administration. A sp prospectus may be obtained by application to Registrar of the School of Physic, Trinity Col Dublin.

*National University of Ireland.**—At this Unive there is a Dipioma in Public Health, a B.Sc. in P Health, and a D.Sc. in Public Health.

University of Belfast.—A Diploma in Public H is given by examination. Every candidate produce evidence that, after obtaining a regist qualification, he has during six months rec

* No returns.

tical instruction in an approved laboratory in h Chemistry, Bacteriology, and the Pathology he diseases of animals transmissible to man are ht. After obtaining a registrable qualification y candidate must produce evidence that he has nded during three months the practice of a ital for infectious diseases at which opportunities afforded for the study of methods of administra-. The examination must have extended over not than four days, one of which shall have been oted to practical work in a laboratory, and one ractical examination in, and reporting on, subjects h fall within the special outdoor duties of a ical officer of health. The first part of the examin- will have reference to the general principles of tary Science and the second part to State Medicine to the applications of Pathology and Sanitary nce. The examination in both parts is held e a year, in March and June.

oyal College of Physicians of Edinburgh, Royal ge of Surgeons of Edinburgh, Royal Faculty of sicians and Surgeons of Glasgow.—All candidates the Diploma in Public Health must have a ification which has been registered under the ical Acts. Candidates must have attended not than four calendar months' practical instruction hemistry and Physics (90 hours), Bacteriology Parasitology (180 hours), and Meteorology and atology (60 hours) in a recognised laboratory or ratories, must have studied outdoor sanitary work six months under a medical officer of health or r sanitary officer; and must give evidence of ndance for three months at the practice of a ital for Infectious Diseases, at which he has ved instruction in the methods of administration. examination consists of two parts, and candidates enter for both at one period or for either separately. First Part includes (*a*) Laboratory Work (Chem- and Bacteriology), (*b*) Physics and Meteorology; the Second Examination embraces (*a*) Report remises visited, (*b*) Examination at Fever Hospital, xamination at Public Abattoir, (*d*) Written and Examinations on Epidemiology and Endemiology, ital Statistics and Sanitary Law, and (*f*) Practical tation. The fee is 12 guineas for both examina-, or 6 guineas for either of them. A fee of ineas is payable by rejected candidates for either ination. The examination is held twice yearly, ay in Glasgow, and October in Edinburgh. The lished regulations provide detailed synopses of the ects of examination. *The curriculum and examina- have been adjusted fully to meet the requirements of egulations of the General Medical Council which into force on Jan. 1st, 1924.* Candidates applying Regulations should state date of commencement rriculum. The Registrar for Edinburgh is Mr. . Eadie, 49, Lauriston-place, and for Glasgow Walter Hurst, 242, St. Vincent-street.

oyal College of Physicians of Ireland and Royal ge of Surgeons in Ireland.—Every candidate the Diploma in Public Health must observe following rules: 1. A period of not less than years shall elapse between the attainment a candidate of a registrable qualification in cine, Surgery, and Midwifery, and his ad- ion to the Final Examination for a Diploma ublic Health. 2. The curriculum for a Diploma Public Health shall extend over a period of less than 12 calendar months subsequent to attainment of a registrable qualification. Every candidate shall produce evidence of ng attended, during a period of not less than months, at an institution approved by the sing Body granting the Diploma, practical uction in—(*a*) Bacteriology and Parasitology uding Medical Entomology), especially in their ion to diseases of man, and to those diseases of ower animals which are transmissible to man; Chemistry and Physics in relation to Public th; (*c*) Meteorology and Climatology in relation ublic Health. At least 180 hours must be devoted to Course (*a*), of which not less than 150 hours shall be occupied in practical Laboratory work. At least 90 hours must be devoted to Course (*b*), of which not less than 70 hours shall be occupied in practical Laboratory work. At least 10 hours must be devoted to Course (*c*). 4. Evidence of having received, during not less than 80 hours, at an institution or from teachers approved by the Licensing Body granting the Diploma, instruction in the following subjects: (*a*) The Principles of Public Health and Sanitation; (*b*) Epidemiology and Vital Statistics; (*c*) Sanitary Law and Administration (including Public Medical Services); (*d*) Sanitary Construction and Planning. 5. Evidence that he has attended for three months on the clinical practice of a recognised Hospital for Infectious Diseases. 6. Evidence that he has, during a period of not less than six months, been engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration under the supervision of a Medical Officer of Health. The examination for the Diploma is divided into two parts. The examination for Part I. includes Bacteriology and Parasitology (with Medical Entomology); Chemistry and Physics, and Meteorology and Climatology, in relation to Public Health. The examination for Part II. includes Hygiene and Sanitation (with Sanitary Construction); Epidemiology and Infectious Diseases; Sanitary Law and Vital Statistics; Public Health Administration. The examination, which is written and oral, includes practical examinations in Infectious Diseases; Food Inspection; Inspection of Premises—dwellings, factories, workshops and schools.

DENTAL SURGERY.

REGISTRATION on the Medical Register entitles a practitioner to practise as a dentist, although he cannot register as such without degree or licence in dentistry; but few dental appointments at general or special hospitals or dispensaries are available save to those with a special diploma.

The Examining Bodies in Dentistry which grant degrees and honour diplomas in the subject are as follows: Royal College of Surgeons of England, Royal College of Surgeons, Edinburgh, Royal Faculty of Physicians and Surgeons of Glasgow, Royal College of Surgeons in Ireland, and the following Universities: Birmingham, Bristol, Durham, Leeds, Liverpool, London, Manchester, Sheffield, St. Andrews, Dublin (Trinity College), and Queen's University of Belfast. The respective requirements of the various examining bodies in dentistry are very similar, being designed to meet the requirements of the Dental Board, but the examinations vary in stringency, and each school has its rules for matriculation and exemption, and its scale of fees. The student should apply to the secretaries of the various Conjoint Boards or to the Deans of the medical faculties or medical schools for a syllabus.

TEACHING INSTITUTIONS IN DENTISTRY: LONDON.

Royal Dental Hospital of London, School of Dental Surgery, Leicester-square.—A school of the University of London. Women are now admitted as students and are eligible for all hospital appointments and school prizes. The school provides the special dental education required by the Royal College of Surgeons for the Licence in Dental Surgery. The general part of the curriculum may be taken at any general hospital. The hospital is open from 9 A.M. to 5 P.M., there being one staff for the morning and another for the afternoon of each day. Pupils are received for the training in dental mechanics recognised by the curriculum. The instructors at the commencement of each session give a course of lectures on Operative Dental Surgery. The five house surgeoncies are held for four months each and are open to all qualified students. The lecturers, in addition to their lectures, give special demonstrations on the

Microscopy of Dental Anatomy and Dental Surgery. The lecturer on Dental Mechanics also gives practical demonstrations in the laboratory. There is an Entrance Scholarship in Chemistry and Physics of the value of £25. One Entrance Scholarship in Dental Mechanics and Metallurgy, value £25, open to pupils of the Hospital only. Prizes and certificates are awarded by the lecturers for the best examinations in the subjects of their respective courses at the end of the summer and winter sessions. For full information as to scholarships and prizes, and other matters connected with the course, application should be made to the Dean.

University College Hospital Dental School, corner of Great Portland and Devonshire-streets, W.—This Hospital and School has recently been thoroughly reorganised, and is now fully equipped with all the most modern appliances. Students are entered as students of University College Hospital, and, as such, attend the classes of Anatomy and Physiology in University College, which is a few minutes' walk from the Dental Department in Great Portland-street, hitherto known as the *National Dental Hospital*, the first Dental School to admit Women Students. Practical courses to comply with the R.C.S. curriculum are held. Clinical Lectures and Demonstrations are given, and each student on entering passes through a preliminary course under a demonstrator. A prospectus containing full information as to lectures, fees, and prizes may be had on application to the Sub-Dean for Dental Students, who attends at University College Hospital Medical School, University street, W.C.1, on Wednesday mornings from 9.30 to 10.30, and at other times by appointment.

Guy's Hospital.—The work of the Dental Department begins daily at 9 A.M. both in the extraction rooms and in the conservation room. The Extraction Rooms: There is ample accommodation for both general and local anæsthetic extractions, together with waiting- and retiring-rooms. Patients are admitted between 8.45 and 9.30 A.M., and are seen by the dental surgeon for the day, the staff demonstrators, the dental house surgeons, and the dressers. The Conservation Room is open from 9 A.M. till 5 P.M. It affords accommodation for about 100 dental chairs, with the necessary equipment of the most modern type for the use of the Dressers, who, under the supervision of the Staff, perform the various operations of Dental Surgery. There is a separate room for denture patients affording accommodation for 15 chairs and a separate department for children with accommodation for 20 chairs. The Members of the staff attend every morning and afternoon to give demonstrations and otherwise assist students in their work in the Conservation Room and Prosthetic Laboratory. The Probationers' Laboratory is supervised by three of the staff demonstrators, and instruction is given in operative dentistry on a "mannikin" to students during their first three months of clinical study. Students in Dental Prosthetics are received, and a graded, systematic, and full course of instruction, extending over two years, is carried out under the supervision of the Director of the Prosthetic Laboratory, assisted by two demonstrators, a house surgeon, and five mechanics.

Dental students have the opportunity of attending at this hospital the whole course of instruction required by the examining board for the B.D.S. Lond. or L.D.S. Eng.—viz., the complete course in dental prosthetics, the special lectures and practice of the Dental Department, and the general lectures and practice of the Medical School. The fees for these two courses may be paid separately or together, or they may be combined with the fees required to be paid for the course for a medical diploma. Students who enter for a medical as well as a dental diploma are allowed to pursue their study of Dentistry during any period of their medical course most convenient to themselves without further charge.

Eighteen house surgeons, 15 assistant house surgeons, and four student demonstrators of Dental Histology are appointed annually. The follow appointments are held by students: Full surge dresser, assistant surgeon's dresser, dresser in children's department, casualty dresser, clerk to anæsthetist, dresser in the gas extraction and l anæsthetic extraction rooms, and probationary dres For particulars as to scholarships and prizes, as as all information, application should be made the Dean of the Medical School.

King's College Hospital.—The Dental School is of the Medical School of King's College Hospi and was opened in November, 1923. The De Out-patient Department of the Hospital is used the performance of dental extractions. A la Conservation Room with provision for 40 dental ch has been equipped. Smaller rooms are used for clin teaching and administrative requirements, an specially equipped laboratory for training in art of dental mechanics. An X ray apparatus been installed for special use in dental skiagra A museum containing a large number of specim illustrating oral, buccal, dental, and other dise is available for teaching purposes. The libr lecture theatre, lecture rooms, common rooms, the refreshment room are all available for the us students. Courses of study, including practical w are provided for the degree of Bachelor of De Surgery of the University of London, and for Diploma in Dental Surgery of the Royal Colleg Surgeons of England. Special arrangements are m for those students who wish to take a medical de or qualification in addition to a degree or diplom Dental Surgery.

The following salaried appointments are oper qualified members of the School: Registrar, Resi House Surgeon, Non-Resident House Surgeon, Tutor in Dental Mechanics.

Full particulars of the Dental School may obtained on application to the Dean, or to Secretary, King's College Hospital, Denmark London, S.E.

London Hospital.—This school is a part of London Hospital and Medical College, and is f equipped on the most modern lines and with latest appliances. It provides a complete curricu in all subjects for the B.D.S. Degree and for the L. Diploma, and is admirably adapted for the pur of teaching. The Conservation Room is well lig and ventilated and fitted with pump chairs of latest pattern; the fountain spittoons at man the chairs have been specially designed. spittoon has attached to it a saliva ejector, hot cold water, compressed air, gas and electric cur also a swing bracket to carry the students' cab Electric sterilisers are supplied in each departm and motor engines where required. The Sc possesses, in addition to the Theatres, Laborato and Museums in the College, a special Museur Dental Anatomy and Surgery, Operative Denti Prosthetic and Extraction Rooms, and Laborat for Practical Metallurgy and Prosthesis. A systen course of instruction is arranged for pupils. The up date Laboratory contains every modern appar and is in charge of a skilled curator and his assist Connected with the Medical College and Dental Sc are a Library, Athenæum, Clubs' Union, Dining with moderate tariff, Students' Hostel, and an Ath Ground. For full particulars as to Scholarships Prizes, fees and course of study advised, apply to Dean of the Medical School.

London (Royal Free Hospital) School of Med for Women.—Full courses are arranged for wo students in conjunction with the Royal De Hospital, Leicester-square, for the study of dentis and in preparation for the B.D.S. Degree of University of London and the Licence in De Surgery of the Royal College of Surgeons of Engl at the London (Royal Free Hospital) Schoo Medicine for Women.

PROVINCIAL TEACHING INSTITUTIONS.

irmingham Dental Hospital, Great Charles-street.—
n: Cyril Howkins, C.B.E., D.S.O., M.R.C.S.,
.S. The Dental Hospital has accommodation for
students. The equipment is in accordance with
most modern requirements for the efficient teaching
practice of Dental Surgery, including Radiology
Ultra-Violet Ray Therapy and a new department
Practical Pathology and Bacteriology. The
ations performed annually average 35,000, includ-
gold and other fillings, crowns, bridges, porcelain
vs, and injections for block and infiltration
sthesia. The orthodontic department is one of
foremost in the country. The Prosthetic and
anical Department is large and well lighted and
r a highly skilled instructor who is always
nt. Application for information as to fees and
larships must be sent to the Dean of the Medical
lty, Birmingham University, or the Dean of the
al Hospital, Birmingham.

eds University School of Dentistry.—The School of
istry is adequately equipped to provide for the
lete training of the dental student. A complete
ion of the course of training is in hand. The
ol forms a part of the Leeds School of Medicine,
t the instruction in clinical and mechanical
istry is carried out in the Dental Hospital at the
ral Infirmary. The School will shortly be housed
spacious new building especially designed to the
irements of modern dental teaching; it is anti-
ed that the building will be opened early in the
g of next year. The courses of study are mainly
ned to meet the requirements of the B.Ch.D.
L.D.S., Leeds, but every opportunity is afforded
tudents preparing for the degrees or diplomas
ther licensing bodies. Full-time demonstrators
the instruction in clinical dental surgery, pros-
c dentistry, and mechanics, which is carried out
r the supervision and direction of members of the
orary Staff, two of whom are in attendance each
Special facilities are provided for instruction
Orthodontia, Dental Radiography, Local and
ral Anæsthetics. Prizes are offered for competi-
to pupils and students in their respective years
udy. Communications should be addressed to
Warden, School of Dentistry, Leeds, from whom
ospectus may be obtained.

ntal Hospital of Manchester.—This hospital is in
iation for teaching purposes with the University
anchester and the Royal Infirmary, and is in
centre of a very large population. Courses of
y are provided to meet the requirements of the
us examining bodies, including those of the
ersity of Manchester for the qualifications L.D.S.
B.D.S., and the L.D.S. of the Royal College of
eons of England. Clinical instruction is given
ental Prosthetics, Operative Dentistry, Diagnosis
Extraction, Orthodontics, Dental Surgery, Radio-
hy, and Anæsthetics by specially appointed
cal Teachers.
l the courses of instruction are open to women
ents. Copies of the Prospectus will be forwarded
pplication to Mr. J. Hilditch Mathews, Dean.

ewcastle-upon-Tyne Dental Hospital and School.—
hospital is centrally situated (within five minutes
e various colleges, infirmary, and railway station);
ooms are well lighted and thoroughly equipped
arrying on the work. Dental surgeons and an
thetist attend each morning. A tutorial dental
on and a prosthetic tutor are also in attendance.
ls and Certificates of Merit are granted to
nts showing certain standards of proficiency
ie various classes at the Dental School. The
pectus of the Dental Hospital and School, con-
ng full information, may be obtained from
James Coltman, 13, Ellison-place, Newcastle-
-Tyne, Dean.

von and Exeter Dental Hospital, 24, Southernhay
, Exeter.—The hospital is open on Mondays, Tuesdays, Wednesdays, Thursdays, Fridays, and Saturdays, and patients are admitted between the hours of 9.30 and 11 A.M. Students attend the practice of the hospital under the control of the medical officers. Secretary, Mr. Albert G. Littlejohn.

SCOTTISH TEACHING INSTITUTIONS.

The Incorporated Edinburgh Dental Hospital and School.—The Edinburgh Dental Hospital and School is located in spacious and well-equipped buildings at 30, 31, and 32, Chambers-street, and offers special advantages to dental students. A large and important extension of the existing buildings has now been opened. The General Courses required for the Dental Diploma may be taken in the Medical School of the Royal Colleges of Physicians and Surgeons or in the University schools. The general hospital attendance and clinical instruction are taken at the Royal Infirmary. The University, Medical Schools, and Royal Infirmary are within three minutes' walk of the Dental Hospital. The special courses are taken in the hospital. The Dental Hospital practice, extending over two years, affords a student ample opportunity for a full acquaintance with every branch of dentistry. The hospital admits a limited number of indentured pupils. They receive their instruction in Mechanical Dentistry concurrently with the general and special courses. A premium of 60 guineas is payable with each such pupil. The practice and lectures of the hospital are recognised by, and qualify for, all the Licensing Boards. Those students who desire to take a Medical and Surgical Diploma in addition to the L.D.S. have in this school admirable facilities for so doing. The triple qualification of the Royal College of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow is recommended. The Higher Dental Diploma (H.D.D.) of the Royal College of Surgeons affords an opportunity of obtaining a higher qualification subsequent to registration. The Prospectus, with full information, may be obtained by application to the Dean or the Assistant Secretary.

Incorporated Glasgow Dental Hospital, 158, Renfrew-street and 15, Dalhousie-street, Glasgow.—The School is open to Men and Women Students, and Lectures are given on Dental Surgery, Operative Dental Surgery, Orthodontia, Dental Anatomy and Physiology, Dental Histology, Dental Mechanics, Crown and Bridge work, Dental Metallurgy, Dental Bacteriology, Radiology, Anæsthetics, and Dental Materia Medica. Lectures on general subjects required for Dentistry may be taken at the University or at one of the extra-mural schools where special provision is made for Dental Students. A new mechanical laboratory with bench accommodation for 60 pupils and fully equipped with the most modern appliances for teaching practical dental mechanics has recently been added. Full information may be had on application to the Dean.

Glasgow Royal Infirmary (Dental Department).—The following course in the curriculum can be taken at St. Mungo's College: Anatomy, six months; Practical Anatomy, nine months; Physiology, six months; Chemistry, six months; Practical Chemistry, three months; Surgery, six months; Medicine, six months; Materia Medica, three months; Dental Surgery, six months, and attendance for two years on the dental department of the hospital. Clinical Medicine (three months) and Clinical Surgery (six months) are taken at the Royal Infirmary.

IRELAND.

Incorporated Dental Hospital of Ireland, Lincoln-place, Dublin.—All Dental Students who have passed their First Dental Examination in the Royal College of Surgeons in Ireland (or an equivalent examination or examinations) are admissible to the Clinical Instruction of the Hospital. In addition to Clinical Instruction and Special Demonstrations, courses of lectures are given at the hospital on Dental Surgery and Pathology, Mechanical Dentistry, the Administration of Anæsthetics, Orthodontia, Dental Anatomy,

and Dental Materia Medica, and instruction in Anæsthetics. The course in practical Dental Mechanics can be taken in the Hospital Laboratory. Further particulars can be obtained from the Dean.

PRISON MEDICAL SERVICE.

CANDIDATES for the Prison Medical Service are approved by the Secretary of State for the Home Department on the recommendation of the Prison Commissioners. Preference is always given to candidates who have experience of lunacy. Application for employment may be made on a special form, which can be obtained from the Secretary, Prison Commission, Home Office, London, S.W. In the smaller prisons the medical officership is part-time, and is usually filled by practitioners in the locality, preference being given to those who have special experience of lunacy. In the large prisons the medical staff must devote their whole time to the Service. In the case of whole-time service, the appointment is in the first instance to the post of Medical Officer, Class II., and from the seniors of this rank the Medical Officers, Class I., are selected as vacancies occur. The pay of the whole-time prison medical staff is as follows: Medical Officer, Class II., £350, rising by annual increments of £20 to £600, making the pay at present with bonus £504 14*s.* to £801 11*s.*; Medical Officer, Class I., £650, rising by annual increments of £25 to £800, plus bonus, making the pay £864 to £1023 9*s.* Unfurnished quarters are provided or an allowance in lieu is made. Study leave is granted annually to two of the whole-time Medical Officers. There are 12 full-time medical officers of Class I. and 15 Class II., and 23 part-time medical officers. The number of vacancies is never large and promotion is slow.

THE DEATH OF MR. ALBAN DORAN.

WE announced last week that Mr. Alban Doran, the well-known anatomist and gynæcologist, was a patient in St. Bartholomew's Hospital. He was suffering from acute glaucoma in the only eye in which he still retained slight vision. We regret to say that on Tuesday last Mr. Doran died in the hospital in the 78th year of his age. The funeral is announced to take place in Kensal Green cemetery at noon to-day, Friday. Mr. Doran's death will be regretted by a large circle of friends and fellow workers. For nearly 60 years as anatomical student, gynæcological expert, and untiring literary researcher, he has been engaged in the practice of his profession with modest assiduity, and medical journalism has lost in him a valuable coöperator.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED AUGUST 13TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 127 (last week 172); scarlet fever, 1365 (last week 1234); diphtheria, 701; enteric fever, 74; pneumonia, 574; puerperal fever, 37; puerperal pyrexia, 93; cerebro-spinal fever, 4; acute poliomyelitis, 15; acute polio-encephalitis, 1; encephalitis lethargica, 35; continued fever, 1; dysentery, 4; ophthalmia neonatorum, 94. There was no case of cholera, plague, or typhus fever notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 2 (0) from enteric fever, 19 (3) from measles, 4 (0) from scarlet fever, 15 (4) from whooping-cough, 20 (6) from diphtheria, 54 (10) from diarrhœa and enteritis under 2 years, and 26 (3) from influenza. The figures in parentheses are those for London itself.

The number of stillbirths registered during the week was 239 in the great towns, including 48 from London.

Vacancies.

For further information refer to the advertisement columns.

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Births, Marriages, and Deat

BIRTHS.

MCCRAE.—On August 17th, the wife of Dr. W. R. Mc Mill Hill, London, of a son.
WILSON.—On August 17th, 1927, at "Carisbrooke," Plym to Vera, wife of Edric F. Wilson, F.R.C.S. Eng., a dau

DEATHS.

ALLWORTH.—On August 17th, at West Hill Lodge, Syde A. Leigh Allworth, M.R.C.S., L.R.C.P., L.D.S.R.C.S.
GEDGE.—On August 15th, suddenly, of heart failure, at H Arthur Johnson Gedge, L.R.C.P., M.R.C.S., L.S.A., ag

N.B.—A fee of 7s. 6d. is charged for the insertion of Not Births, Marriages, and Deaths.

ERRATUM.—In the obituary notice of Dr. C Daniels published in THE LANCET of August it was stated that Dr. Daniels married the dau of Mr. William Slater. Dr. Daniels's father, the Thomas Daniels, married Miss Charlotte S Their son, the subject of the obituary notice, unmarried. We much regret that our inform was misleading.

THE LANCET

No. 5427. LONDON, SATURDAY, SEPTEMBER 3, 1927. CCXIII.

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An Address
ON
ARWIN'S THEORY OF MAN'S DESCENT AS IT STANDS TO-DAY.

ing the Presidential Address delivered before the British Association for the Advancement of Science, Leeds Meeting, August 31st, 1927,

Y PROF. SIR ARTHUR KEITH, M.D. ABERD., D.Sc., LL.D., F.R.S.

Sir Arthur Keith prefaced his address with a ssage to the Prince of Wales in which he stated t the interest His Royal Highness had taken, ilst President last year, in the work of the ociation would prove a permanent source of ouragement for all who work for the betterment fe through increase of knowledge. He proceeded:—]

he subject of my address is Man's remote history. ty-five years have come and gone since Charles rwin wrote a history of Man's Descent. How does work stand the test of time? This is the question ropose to discuss.

THE OPENING SHOT IN THE DARWINIAN BATTLE.

n tracing the course of events which led up to present conception of man's origin, no place could ve as a historical starting-point so well as Leeds. this city was fired the first verbal shot of that long t bitter strife which ended in the overthrow of se who defended the Biblical account of man's ation and in a victory for Darwin. On Sept. 24th, 8—69 years ago—the British Association assembled this city just as we do to-night; Sir Richard en, the first anatomist of his age, stood where ow stand. He had prepared a long address and veyed, as he was well qualified to do, the whole lm of science; but only those parts which concern n's origin require our attention now. He cited dence which suggested a much earlier date for the earance of man on earth than was sanctioned by lical records, but poured scorn on the idea that n was merely a transmuted ape. He declared to assembled Association that the differences between n and ape were so great that it was necessary, in opinion, to assign mankind to an altogether arate order in the animal kingdom. As this ement fell from the President's lips there was least one man in the audience whose spirit of osition was roused—Thomas Henry Huxley—en's young and rising antagonist.

OWEN AND HUXLEY.

have picked out Huxley from the audience ause it is necessary for the development of my me that we should give him our attention for moment. We know what Huxley's feelings were ards Owen at the date of the Leeds meeting. months before he had told his sister that "an rnecine feud rages between Owen and myself," on the eve of his departure for Leeds he wrote to ker: "The interesting question arises: Shall I e a row with the great O. there?" I am glad to the Leeds meeting passed off amicably, but it led in Huxley's mind what the "row" was to be ut when it came. It was to concern man's rightful ition in the scale of living things.

MAN'S POSITION IN THE ANIMAL KINGDOM.

wo years later, in 1860, when this Association in Oxford, Owen gave Huxley the opportunity desired. In the course of a discussion Owen eated the statement made at Leeds as to man's arate position, claiming that the human brain had ain structural features never seen in the brain of hropoid apes. Huxley's reply was a brief and emphatic denial with a promise to produce evidence in due course—which was faithfully kept. This opening passage at arms between our protagonists was followed two days later by that spectacular fight—the most memorable in the history of our Association—in which the Bishop of Oxford, the representative of Owen and of orthodoxy, left his scalp in Huxley's hands. To make his victory decisive and abiding, Huxley published, early in 1863, "The Evidences of Man's Place in Nature," a book which has a very direct bearing on the subject of my discourse. It settled for all time that man's rightful position is among the primates, and that as we anatomists weigh evidence, his nearest living kin are the anthropoid apes.

OWEN'S OPINION OF DARWINISM.

My aim is to make clear to you the foundations on which rest our present-day conception of man's origin. The address delivered by my predecessor from this chair at the Leeds meeting of 1858 has given me the opportunity of placing Huxley's fundamental conception of man's nature in a historical setting. I must now turn to another issue which Sir Richard Owen merely touched upon but which is of supreme interest to us now. He spent the summer in London, just as I have done, writing his address for Leeds and keeping an eye on what was happening at scientific meetings. In his case something really interesting happened. Sir Charles Lyell and Sir Joseph Hooker left with the Linnean Society what appeared to be an ordinary roll of manuscript, but what in reality was a parcel charged with high explosives, prepared by two very innocent-looking men—Alfred Russel Wallace and Charles Darwin. As a matter of honesty it must be admitted that these two men were well aware of the deadly nature of its contents, and knew that if an explosion occurred, man himself, the crown of creation, could not escape its destructive effects. Owen examined the contents of the parcel and came to the conclusion that they were not dangerous; at least, he manifested no sign of alarm in his Presidential Address. He dismissed both Wallace and Darwin, particularly Darwin, in the briefest of paragraphs, at the same time citing passages from his own work to prove that the conception of natural selection as an evolutionary force was one which he had already recognised.

THE TRANSFORMATION OF OUR OUTLOOK ON MAN'S ORIGIN.

I cannot help marvelling over the difference between our outlook to-day and that of the audience which Sir Richard Owen had to face in this city 69 years ago. The vast assemblage which confronted him was convinced, almost without a dissentient, that man had appeared on earth by a special act of creation; whereas the audience which I have now the honour of addressing, and that larger congregation which the wonders of wireless bring within the reach of my voice, if not convinced Darwinists are yet prepared to believe, when full proofs are forthcoming, that man began his career as a humble primate animal, and has reached his present estate by the action and reaction of biological forces which have been and are ever at work within his body and brain.

DARWIN'S GENERALSHIP.

This transformation of outlook on man's origin is one of the marvels of the nineteenth century, and to see how it was effected we must turn our attention for a little while to the village of Down in the Kentish uplands and note what Charles Darwin was doing on the very day that Sir Richard Owen was delivering his address here in Leeds. He sat in his study struggling with the first chapter of a new book; but no one foresaw, Owen least of all, that the publication of the completed book, "The Origin of Species," 15 months later (1859) was to effect a sweeping revolution in our way of looking at living things and to initiate a new period in human thought—the

Darwinian period—in which we still are. Without knowing it, Darwin was a consummate general. He did not launch his first campaign until he had spent 22 years in stocking his arsenal with ample stores of tested and assorted fact. Having won territory with "The Origin of Species," he immediately set to work to consolidate his gains by the publication in 1868 of another book, "The Variation of Animals and Plants under Domestication"—a great and valuable treasury of biological observation. Having thus established an advanced base, he moved forwards on his final objective—the problem of human beginnings—by the publication of "The Descent of Man" (1871), and that citadel capitulated to him. To make victory doubly certain he issued in the following year—1872—"The Expression of the Emotions in Man and Animals." Many a soldier of truth had attempted this citadel before Darwin's day, but they failed because they had neither his generalship nor his artillery.

History as Written by Darwin.

Will Darwin's victory endure for all time? Before attempting to answer this question, let us look at what kind of book "The Descent of Man" is. It is a book of history—the history of man, written in a new way—the way discovered by Charles Darwin. Permit me to illustrate the Darwinian way of writing history. If a history of the modern bicycle had to be written in the orthodox way, then we should search dated records until every stage was found which linked the two-wheeled hobby-horse, bestrode by tall-hatted fashionable men at the beginning of the nineteenth century, to the modern "jeopardy" which now flashes past us in country lanes. But suppose there were no dated records—only a jumble of antiquated machines stored in the cellar of a museum. We should, in this case, have to adopt Darwin's way of writing history. By an exact and systematic comparison of one machine with another we could infer the relationship of one to another and tell the order of their appearance, but as to the date at which each type appeared and the length of time it remained in fashion, we could say very little. It was by adopting this circumstantial method that Darwin succeeded in writing the history of man. He gathered historical documents from the body and behaviour of man and compared them with observations made on the body and behaviour of every animal which showed the least resemblance to man. He studied all that was known in his day of man's embryological history and noted resemblances and differences in the corresponding histories of other animals. He took into consideration the manner in which the living tissues of man react to disease, to drugs, and to environment; he had to account for the existence of diverse races of mankind. By a logical analysis of his facts Darwin reconstructed and wrote a history of man.

Darwin's Impregnable Position: Evidence of Fossil Remains.

Fifty-six years have come and gone since that history was written; an enormous body of new evidence has poured in upon us. We are now able to fill in many pages which Darwin had perforce to leave blank, and we have found it necessary to alter details in his narrative, but the fundamentals of Darwin's outline of man's history remain unshaken. Nay, so strong has his position become that I am convinced that it never can be shaken.

Why do I say so confidently that Darwin's position has become impregnable? It is because of what has happened since his death in 1882. Since then we have succeeded in tracing man by means of his fossil remains and by his stone implements backwards in time to the very beginning of that period of the earth's history to which the name Pleistocene is given. We thus reach a point in history which is distant from us at least 200,000 years, perhaps three times that amount. Nay, we have gone farther, and traced him into the older and longer period which preceded the Pleistocene—the Pliocene. It was in strata laid down by a strea in Java during the latter part of the Pliocene peri that Dr. Eugene Dubois found, ten years aft Darwin's death, the fossil remains of that remarkal representative of primitive humanity to which gave the name *Pithecanthropus*, or ape-man; fro Pliocene deposits of East Anglia Mr. Reid Moir h recovered rude stone implements. If Darwin w right, than as we trace man backwards in the sca of time he should become more bestial in form—near to the ape. That is what we have found. But we regard *Pithecanthropus* with his small and simp yet human brain as a fair representative of the m of the Pliocene period, then evolution must ha proceeded at an unexpectedly rapid rate to culmina to-day in the higher races of mankind.

Man's Descent has not been in a Straight Lin

The evidence of man's evolution from an ape-li being, obtained from a study of fossil remains, definite and irrefutable, but the process has be infinitely more complex than was suspected in Darwir time. Our older and discarded conception of mar transformation was depicted in that well-knov diagram which showed a single file of skeletons, t gibbon at one end and man at the other. In o original simplicity we expected, as we traced m backwards in time, that we should encounter graded series of fossil forms—a series which wou carry him in a straight line towards an anthropo ancester. We should never have made this initi mistake if we had remembered that the guide to t world of the past is the world of the present. In o time man is represented not by one but by many ar diverse races—black, brown, yellow, and white; son of these are rapidly expanding, others are as rapid disappearing. Our searches have shown that remote times the world was peopled, sparsely it true, with races showing even a greater diversity tha those of to-day, and that already the same process replacement was at work. To unravel man's pedigr we have to thread our way, not along the links of chain, but through the meshes of a complicate network.

Diversity of Form in Ancient Times.

We made another mistake. Seeing that in o search for man's ancestry we expected to reach a age when the beings we should have to deal with wou be simian rather than human, we ought to have mark the conditions which prevail amongst living anthropo apes. We ought to have been prepared to find, a we approached a distant point in the geologic horizon, that the forms encountered would be widely different as are the gorilla, chimpanzee, ar orang, and confined, as these great anthropoi now are, to limited parts of the earth's surface. Tha is what we are now realising; as we go backwar in time we discover that mankind becomes broken u not into separate races as in the world of to-da but into numerous and separate species. When w go into a still more remote past they become s unlike that we have to regard them not as belongin to separate species but different genera. It is among this welter of extinct fossil forms which strew th ancient world that we have to trace the zigzag lin of man's descent. Do you wonder we sometime falter and follow false clues?

Discordant Evolution.

We committed a still further blunder when w set out on the search for man's ancestry; indeed, som of us are still making it. We expected that man evolution would pursue not only an orderly file stages but that every part of his body—skull, brai jaws, feet, skin, body, arms, and legs—would a each stage become a little less ape-like, a little mor man-like. Our searches have shown us that man evolution has not proceeded in this orderly manne In some extinct races, while one part of the bod has moved forwards another part has lagged behin Let me illustrate this point, because it is important

We now know that, as Darwin sat in his study at Down, there lay hidden at Piltdown, in Sussex, not 10 miles distant from him, sealed up in a bed of gravel, a fossil human skull and jaw. In 1912, 10 years after Darwin's death, Mr. Charles Dawson discovered this skull, and my friend Sir Arthur Smith Woodward described it, and rightly recognised that skull and jaw were parts of the same individual, and that this individual had lived, as was determined by geological and other evidence, in the opening phase of the Pleistocene period. We may confidently presume that this individual was representative of the people who inhabited England at this remote date. The skull, although deeply mineralised and thick-walled, might well have been the rude forerunner of a modern skull, but the lower jaw was so ape-like that some experts denied that it went with the human fossil skull at all, and supposed it to be the lower jaw of some extinct kind of chimpanzee. This mistake would never have been made if those concerned had studied the comparative anatomy of anthropoid apes. Such a study would have prepared them to meet with the disordances of evolution. The same irregularity in the progression of parts is evident in the anatomy of *Pithecanthropus*, the oldest and most primitive form of humanity so far discovered. The thigh-bone might easily be that of modern man, the skull-cap that of an ape, but the brain within that cap, as we now know, had passed well beyond an anthropoid status. If merely a lower jaw had been found at Piltdown an ancient Englishman would have been wrongly labelled "higher anthropoid ape"; if only the thigh-bone of *Pithecanthropus* had come to light in Java, then an ancient Javanese, almost deserving the title of anthropoid, would have passed muster as a man.

Blanks Still Remain in the Geological Record.

Such examples illustrate the difficulties and dangers which beset the task of unravelling man's ancestry. There are other difficulties; there still remain great blanks in the geological record of man's evolution. As our search proceeds these blanks will be filled in, but in the meantime let us note their nature and their extent. By the discovery of fossil remains we have followed man backwards to the close of the Pliocene—a period which endured at least for a quarter of a million years, but we have not yet succeeded in tracing him through this period. It is true that we have found fossil teeth in Pliocene deposits which may be those of an ape-like man or of a man-like ape; until we find other parts of their bodies we cannot decide. When we pass into the still older Miocene period—one which was certainly twice as long as the Pliocene—we are in the heyday of anthropoid history. Thanks to the labours of Dr. Guy E. Pilgrim, of the Indian Geological Survey, we know already of a dozen different kinds of great anthropoids which lived in Himalayan jungles during middle and later Miocene times; we know of at least three other kinds of great anthropoids which lived in the contemporary jungles of Europe. Unfortunately, we have found as yet only the most resistant parts of their bodies—teeth and fragments of jaw. Do some of these fragments represent a human ancestor? We cannot decide until a lucky chance brings to light a limb-bone or a piece of skull, but no one can compare the teeth of these Miocene anthropoids with those of primitive man, as has been done so thoroughly by Prof. William K. Gregory, and escape the conviction that in the dentitions of the extinct anthropoids of the Miocene jungles we have the ancestral forms of human teeth.

Date of Man's Emergence.

It is useless to go to strata still older than the Miocene in search of man's emergence; in such strata we have found only fossil traces of emerging anthropoids. All the evidence now at our disposal supports the conclusion that man has arisen, as Lamarck and Darwin suspected, from an anthropoid ape not higher in the zoological scale than a chimpanzee, and that the date at which human and anthropoid lines of descent began to diverge lies near the beginning of the Miocene period. On our modest scale of reckoning, that gives man the respectable antiquity of about one million years.

Proofs of our Anthropoid Ancestry.

Our geological search, which I have summarised all too briefly, has not produced so far the final and conclusive evidence of man's anthropoid origin; we have not found as yet the human *imago* emerging from its anthropoid encasement. Why, then, do modern anthropologists share the conviction that there has been an anthropoid stage in our ancestry? They are no more blind than you are to the degree of difference which separates man and ape in structure, in appearance, and in behaviour. I must touch on the sources of this conviction only in a passing manner. Early in the present century Prof. G. H. F. Nuttall, of Cambridge University, discovered a trustworthy and exact method of determining the affinity of one species of animal to another by comparing the reactions of their blood. He found that the blood of man and that of the great anthropoid apes gave almost the same reaction. Bacteriologists find that the living anthropoid body possesses almost the same susceptibilities to infections, and manifests the same reactions, as does the body of man. So alike are the brains of man and anthropoid in their structural organisation that surgeons and physiologists transfer experimental observations from the one to the other. When the human embryo establishes itself in the womb it throws out structures of a most complex nature to effect a connexion with the maternal body. We now know that exactly the same elaborate processes occur in the anthropoid womb and in no other. We find the same vestigial structures—the same "evolutionary post-marks"—in the bodies of man and anthropoid. The anthropoid mother fondles, nurses, and suckles her young in the human manner. This is but a tithe of the striking and intimate points in which man resembles the anthropoid ape. In what other way can such a myriad of coincidences be explained except by presuming a common ancestry for both?

Evolution of Man's Brain.

The crucial chapters in Darwin's "Descent of Man" are those in which he seeks to give a historical account of the rise of man's brain and of the varied functions which that organ subserves. How do these chapters stand to-day? Darwin was not a professional anatomist, and therefore accepted Huxley's statement that there was no structure in the human brain that was not already present in that of the anthropoid. In Huxley's opinion the human brain was but a richly annotated edition of the simpler and older anthropoid book, and that this edition, in turn, was but the expanded issue of the still older original primate publication. Since this statement was made thousands of anatomists and physiologists have studied and compared the brain of man and ape; only a few months ago Prof. G. Elliot Smith summarised the result of this intensive inquiry as follows: "No structure found in the brain of an ape is lacking in the human brain, and, on the other hand, the human brain reveals no formation *of any sort* that is not present in the brain of the gorilla or chimpanzee. . . . The only distinctive feature of the human brain is a quantitative one." The difference is only quantitative but its importance cannot be exaggerated. In the anthropoid brain are to be recognised all those parts which have become so enormous in the human brain. It is the expansion of just those parts which has given man his powers of feeling, understanding, acting, speaking, and learning.

Evidence of Psychology.

Darwin himself approached this problem not as an anatomist but as a psychologist, and after many years of painstaking and exact observation succeeded

in convincing himself that, immeasurable as are the differences between the mentality of man and ape, they are of degree, not of kind. Prolonged researches made by modern psychologists have but verified and extended Darwin's conclusions. No matter what line of evidence we elect to follow—evidence gathered by anatomists, by embryologists, by physiologists, or by psychologists—we reach the conviction that man's brain has been evolved from that of an anthropoid ape, and that in the process no new structure has been introduced and no new or strange faculty interpolated.

UNEXPLAINED PROBLEMS.

In these days our knowledge of the elaborate architecture and delicate machinery of the human brain makes rapid progress, but I should mislead if I suggested that finality is in sight. Far from it; our inquiries are but begun. There is so much we do not yet understand. Will the day ever come when we can explain why the brain of man has made such great progress while that of his cousin the gorilla has fallen so far behind? Can we explain why inherited ability falls to one family and not to another, or why, in the matter of cerebral endowment, one race of mankind has fared so much better than another? We have as yet no explanation to offer, but an observation made 20 years ago by one on whom nature has showered great gifts—a former President of this Association and the doyen of British zoologists, Sir E. Ray Lankester—deserves quotation in this connexion: "The leading feature in the development and separation of man from other animals is undoubtedly the relative enormous size of the brain in man and the corresponding increase in its activities and capacity. It is a striking fact that it was not in the ancestors of man alone that this increase in the size of the brain took place at this same period—the Miocene. Other great mammals of the early Tertiary period were in the same case." When primates made their first appearance in geological records they were, one and all, small-brained. We have to recognise that the tendency to increase of brain, which culminated in the production of the human organ, was not confined to man's ancestry but appeared in diverse branches of the mammalian stock at a corresponding period of the earth's history.

DARWIN'S CONCEPTION OF EVOLUTION ILLUSTRATED.

I have spoken of Darwin as a historian. To describe events and to give the order of their occurrence is the easier part of a historian's task; his real difficulties begin when he seeks to interpret the happenings of history, to detect the causes which produced them, and explain why one event follows as a direct sequel to another. Up to this point we have been considering only the materials for man's history, and placing them, so far as our scanty information allows, in the order of their sequence, but now we have to seek out the biological processes and controlling influences which have shaped the evolutionary histories of man and ape. The evolution of new types of man or of ape is one thing, and the evolution of new types of motor-cars is another, yet for the purposes of clear thinking it will repay us to use the one example to illustrate the other. In the evolution of motor vehicles Darwin's law of selection has prevailed; there has been severe competition, and the types which have answered best to the needs and tastes of the public have survived. The public has selected on two grounds—first for utility, thus illustrating Darwin's law of natural selection, and secondly because of appearance's sake; for, as most people know, a new car has to satisfy not only the utilitarian demands of its prospective master but also the æsthetic tastes of its prospective mistress, therein illustrating Darwin's second law—the law of sexual selection. That selection, both utilitarian and æsthetic, is producing an effect on modern races of mankind and in surviving kinds of ape, as Darwin supposed, cannot well be questioned. In recent centuries the inter-racial competition amongst men for the arable lands of the world is keener than in any known period of hum history.

PRODUCTION OF NEW TYPES.

The public has selected its favoured types of c but it has had no direct hand in designing and p ducing modifications and improvements which ha appeared year after year. To understand how su modifications are produced the inquirer must enter factory and not only watch artisans shaping a fitting parts together but also visit the designer's offic In this way an inquirer will obtain a glimpse of t machinery concerned in the evolution of motor-ca If we are to understand the machinery which underli the evolution of man and of ape, we have to enter t "factories" where they are produced—look with the womb and see the ovum being transformed in an embryo, the embryo into a fœtus, and the fœt into a babe. After birth we may note infancy passi into childhood, childhood into adolescence, adolescen into maturity, and maturity into old age. Merely register the stages of change is not enough; to unde stand the controlling machinery we have to sear out and uncover the processes which are at wo within developing and growing things and the influenc which coördinate and control all the processes of develo ment and of growth. When we have discovered t machinery of development and of growth we sh also know the machinery of evolution, for they a the same.

MACHINE AND ANIMAL EVOLUTION CONTRASTED.

If the simile I have used would sound strange Darwin's ear could he hear it, the underlying meani would be familiar to him. Over and over again declared that he did not know how "variations were produced, favourable or otherwise; nor cou he have known, for in his time hormones were undream of and experimental embryology scarcely born. Wi these recent discoveries new vistas opened up f students of evolution. The moment we begin work out the simile I have used and compare t evolutionary machinery in a motor factory with th which regulates the development of an embryo with the womb, we realise how different the two process are. Let us imagine for a moment what chang would be necessary were we to introduce "embry logical processes" into a car factory. We have conceive a workshop teeming with clustering swarn of microscopic artisans, mere specks of living matte In one end of this factory we find swarms busy wi cylinders, and as we pass along we note that eve part of a car is in process of manufacture, each pa being the business of a particular brigade of micr scopic workmen. There is no apprenticeship in th factory, every employee is born, just as a hiv bee is, with his skill already fully developed. N plans or patterns are supplied; every workman h the needed design in his head from birth. There neither manager, overseer, nor foreman to dire and coördinate the activities of the vast artisan armie And yet if parts are to fit when assembled, if pinio are to mesh and engines run smoothly, there mu be some method of coördination. It has to be method plastic enough to permit difficulties to overcome when such are encountered and to perm the introduction of advantageous modificatio when these are needed. A modern works manag would be hard put to it were he asked to devise a automatic system of control for such a factory, y it is just such a system that we are now obtainir glimpses of in the living workshops of nature.

MACHINERY OF DEVELOPMENT.

I have employed a crude simile to give the la mind an inkling of what happens in that "factory where the most complicated of machines are forg —the human body and brain. The fertilised ovu divides and redivides; one brood of microscop living units succeeds another, and as each is produc the units group themselves to form the "parts" an embryo. Each "part" is a living society; t

nbryo is a huge congeries of interdependent societies. ow are their respective needs regulated, their freedoms otected, and their manœuvres timed? Experimental nbryologists have begun to explore and discover the achinery of regulation. We know enough to realise at it will take many generations of investigators work over the great and new field which is thus ening up. When this is done we shall be in a better sition to discuss the cause of "variation" and the achinery of evolution.

MACHINERY OF GROWTH.

If we know only a little concerning the system of vernment which prevails in the developing embryo e can claim that the system which prevails in the owing body, as it passes from infancy to maturity, becoming better known to us every year. The fluence of the sex glands on the growth of the body as been known since ancient times; their removal youth leads to a transformation in the growth of very part of the body, altering at the same time ie reactions and temperament of the brain. In ore recent years medical men have observed that aracteristic alterations in the appearance and nstitution of the human body can be produced by ie action of other glands—the pituitary, thyroid, arathyroid, and adrenals. Under the disorderly tion of one or other of these glands individuals may, the course of a few years, take on so changed an pearance that the differences between them and eir fellows become as great as, or even greater than, ose which separate one race of mankind from nother. The physical characters which are thus tered are just those which mark one race off from nother. How such effects are produced we did not now until 1904, when the late Prof. E. H. Starling, leader amongst the great physiologists of our time, id bare an ancient and fundamental law in the living nimal body—his law of hormones. I have pictured ie body of a growing child as an immense society ade up of myriads of microscopic living units, ever creasing in numbers. One of the ways—probably ie oldest and most important way—in which the ctivities of the communities of the body are coördinted and regulated is by the postal system discovered y Starling, wherein the missives are hormones—hemical substances in ultra-microscopic amounts, espatched from one community to another in the irculating blood. Clearly the discovery of this ncient and intricate system opens up fresh vistas o the student of man's evolution. How Darwin ould have welcomed this discovery! It would have iven him a rational explanation to so many of his nsolved puzzles, including that of "correlated ariations." Nor can I in this connexion forbear to ention the name of one who presided so ably over he affairs of this Association 15 years ago—Sir E. harpey-Schafer. He was the pioneer who opened p this field of investigation, and has done more than nyone to place our knowledge of the nature and ction of the glands of internal secretion on a precise asis of experimental observation. With such sources f knowledge being ever extended and others of great mportance, such as the study of heredity, which have een left unmentioned, we are justified in the hope that nan will be able in due time not only to write his own istory but to explain how and why events took the ourse they did.

Briefly I have attempted to answer a question of momentous importance to all of us—What is man's rigin? Was Darwin right when he said that man, nder the action of biological forces which can be bserved and measured, has been raised from a place mongst anthropoid apes to that which he now ccupies? The answer is Yes! and in returning his verdict I speak but as foreman of the jury—a jury which has been empannelled from men who have levoted a lifetime to weighing the evidence. To the best of my ability I have avoided, in laying before you the evidence on which our verdict was found, he rôle of special pleader, being content to follow Darwin's own example—Let the truth speak for itself.

A CASE OF
MALIGNANT LYMPHADENOSIS,
WITH SOME REMARKS ON LEUKÆMIC DISEASES IN GENERAL.

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THE great variety of symptoms met with in diseases of leukæmic type sometimes makes it very difficult to fit a case of this kind into a certain group according to the usual classification. Since Virchow and John Hughes Bennett described leukæmia as distinct from leucocytosis and pyæmia, authors in different countries when publishing their cases have tried to assort their observations into a multitude of new groups. Thus we find in the literature on the subject a legion of diseases which very often indeed are indistinguishable from each other and which not always bear happily chosen terms. The reason of this confusing classification lies not only in the obscure ætiology of the disease, but also in the variable relations between the clinical history, the condition of the blood, and the histological picture of the organs affected. The as yet unsettled origin of blood-cells makes a clear classification still more difficult.

The early authors considered the disease merely as a pathological condition of the blood, and the changes in the organs were looked upon as the result of a secondary spread of pathological cells from the blood. The pathological blood-picture was thus regarded as an essential part of the disease. Hence the term leukæmia or leukocythæmia. When Cohnheim and, later, Pinkus described a condition which corresponded clinically and histologically with the usual type of leukæmia, but without the changes in the blood, they called it pseudoleukæmia, still apparently under the impression that there could be no true leukæmia without a definite pathological blood-picture.

Since then we have learned to regard the histological picture of the organs affected as most characteristic of the disease, and the leukæmic condition of blood only as a frequent though not essential symptom for diagnosis. We know now that leukæmia and some allied diseases represent a systemic affection of the hæmatopoietic tissue, which is scattered all over the organism. The histological organic changes are due to a proliferation *in situ* originating from undifferentiated perivascular and connective tissue cells, upon which groups of cells especially Ferrata's researches in recent years have thrown some light.

As long as the mystery of the primary cause of this abnormal proliferation remains unsolved, the most important guiding points in the classification of these diseases should therefore be the appearance of the histological picture of different organs. If we adopt this point of view, terms like pseudoleukæmia or even leukæmia will appear to be very unscientific. The term pseudoleukæmia, which is still used by many authors, is particularly misleading. Some authors,[1] like Rieux, include in this group even such diseases as Hodgkin's or Gaucher's splenomegaly. Pappenheim,[2] like many other German authors, divides diseases of the hæmatopoietic system into two main groups: (1) generalised leucocytomatosis; (2) generalised granulomatosis. To use Pappenheim's own words:—

> "The histological difference between the leucocytomatous (myeloid and lymphadenoid) and granulomatous forms seems to be that in the first case there is a proliferation of the myeloid and myelopotential, or lymphadenoid and lymphopotential, parenchyma, while in the case of the granulomatosis there is a proliferation of the interparenchymatous stroma, with a tendency to scar tissue formation and sclerosis."

Thus to the category "granulomatosis" would belong Hodgkins' disease and all the generalised inflammatory diseases of lymphatic glands—i.e., of tuberculous or syphilitic nature, Banti's disease, &c.

To the other group belong all the varieties of leukæmias. This group is subdivided by Pappenheim, Rieux, Clerc,[3] and others in a very similar way to each other. The difference lies more with the nomenclature. The most popular classification is into: (1) lymphadenosis, corresponding with lymphatic leukæmia; and (2) myelosis (Schridde), identical with myeloid leukæmia. Each of them may have a leukæmic or an aleukæmic blood-picture. And, according to Rieux, each of them may be of a benign or malignant type, and may be localised or generalised. We may thus meet with a benign generalised leukæmic lymphadenosis, which would correspond with the term lymphatic leukæmia, or in another case we may find a localised malignant aleukæmic lymphadenosis, which would correspond with Kundrat-Paltauf's lymphosarcoma; and in fact all possible combinations may be met with.

The advantage of this terminology is, that (1) it emphasises the histological changes in the tissues; (2) shows the common nature of all these diseases, and (3) shows that there are no clear limits between them—i.e., one type may pass into another during the course of the disease. A case we had recently the opportunity of observing gives, in our opinion, quite a good illustration of the relationship between these groups.

History of the Case.

The patient, A. B., an Italian shopkeeper, aged 40, was admitted to the Italian Hospital on March 13th, 1927. He was a tall, fairly well nourished and strongly built man. He complained of pain in the left side for the last three weeks. He had suffered previously from cough every winter, from frequent indigestion and lassitude. There had been no other previous illnesses. On examination the face and mucous membranes were found to be pale. Temperature, pulse, respiration were normal. Blood pressure 120/90.

The left hypochondrium was rigid and very tender, and a hard tumour could be felt occupying the whole of the left hypochondriac and partly the epigastric region, with a hard edge three fingers below the left costal margin. No notch could be felt, and the tumour did not move on respiration. It was continuous across the abdomen with the edge of the right lobe of the liver, which reached three fingers below the right costal margin.

The patient had noticed the swelling only for three weeks. Lungs: the left base was dull and some friction could be heard. Right upper lobe showed diminished air entry. The sputum contained pneumococci and streptococci; no tubercle bacilli. The heart was pushed over to the right and upwards. An X ray picture showed the left dome of diaphragm greatly pushed upwards.

Lymph glands, cervical, axillary, inguinal, and femoral, very large, discrete, and freely movable. Some of the cervical glands were as large as a pigeon's egg. Tonsils not enlarged. Per rectum some very large glands could be felt at the bifurcation of the aorta. The patient stated that he had had all these enlarged glands for many years, but he was not quite certain if some of them had increased in size lately. His medical attendant told us that the patient had these enlarged glands as far back as ten years ago, when he came to him for some gastric trouble and wanted to have a large cervical gland removed. There was, however, no blood-count made at this time.

Urine contained a trace of albumin, no casts, a few *B. coli*. The blood-count made on March 18th gave normal figures: 8200 white cells and a normal differential count. 20th: The spleen now reached the umbilicus. 21st: A cervical lymphatic gland was excised for a biopsy: it was grey in appearance and of a very soft consistency; microscopically it showed absence of the usual lymph gland structure with its regeneration centres. There was but little stroma and a few vessels were seen. It consisted of a uniform mass of cells having the appearance of small lymphocytes packed tightly within the capsule and compressed near the periphery. Amongst them there were scattered some cells showing mitosis and a few endothelial cells. Wassermann reaction was negative. A couple of days later the throat became dry and inflamed. Some ecchymosis were seen on the palate and back of tongue.

The patient had a severe epistaxis on March 25th. An examination of blood made on the 28th showed red cells 4,810,000, hæmoglobin 90 per cent., white cells 6500; differential count: lymphocytes (the majority being of the small type) 45 per cent., segmented neutrophiles 35 per cent., myelocytes 4 per cent., young metamyelocytes 2 per cent., neutrophiles with a rod-shaped nucleus 10 per cent., basophiles 3 per cent., eosinophiles 1 per cent. On the 29th another differential count was made showing neutrophiles 65 per cent., lymphocytes 33 per cent., hyalines 2 per cent.

The abdomen became now more and more distended. On March 30th the liver reached a line from the right iliac spine to the umbilicus. There was evidence of free fluid in the abdominal cavity. On the 29th the temperature, which till then had not risen above 99·4° in the evening, went up to 100·6°, but came down again to 98° on the 31st.

A differential count on April 2nd gave neutrophiles 25 per cent., large lymphocytes 20 per cent., small lymphocytes 35 per cent., hyalines 4 per cent., eosinophiles 1 per cent., myelocytes 5 per cent., metamyelocytes 5 per cent., lymphoblasts 5 per cent. Platelets 220,000 per c.cm., red cells normal. Œdema of both legs, probably due to pressure, appeared on April 5th. Patient complained of very much abdominal pain.

On April 7th another examination of blood showed: red cells 4,600,000, hæmoglobin 90 per cent., white cells 60,000, differential count: small lymphocytes 70½ per cent., large lymphocytes 15½ per cent., lymphoblasts 1½ per cent., segmented neutrophiles 2½ per cent., neutrophiles with rod-shaped nuclei 4½ per cent., myelocytes 1 per cent., metamyelocytes 4½ per cent.

The general condition of the patient became now rapidly worse. On April 16th he had a severe rectal hæmorrhage. An examination of blood done the same day gave red cells 4,120,000, hæmoglobin 75 per cent., anisocytosis and poikilocytosis. White cells 68,400, small lymphocytes 89½ per cent., large 7 per cent., myelocytes ½ per cent., metamyelocytes 2 per cent., segmented neutrophiles 1 per cent. On the 17th the patient had another rectal hæmorrhage, and he died in the evening of the same day. The temperature went up shortly before death to 100·8°, this being the highest noted temperature during the patient's stay at the hospital.

Necropsy.—In the thorax: there was a chain of large glands in the mediastinum. They were all soft, of a putty-like consistency. There were several infiltrations of a similar character in the wall of the thorax and on the diaphragm. Lungs: nothing abnormal. Heart: dilated and showing myocardial degeneration. Left dome of diaphragm pushed very much upwards by the spleen. Abdomen: free fluid present. Spleen weighed 8½ lb. and was of hard consistency. There were signs of a perisplenitis. The section showed on a dark brown background large, irregular, confluent, grey patches. Several smaller and larger infarcts were present.

The liver weighed 9¼ lb. On section it had greyish irregular patches of different sizes. The posterior wall of the stomach contained a round patch of infiltration which unfortunately was overlooked at the microscopical examination. The kidneys did not show anything abnormal on naked-eye examination. There were enlarged lymph glands forming huge confluent masses between the pancreas and the stomach. Some of them were larger than a man's fist. Glands in other situations were considerably enlarged. The bone marrow of the right humerus, which was sawn open longitudinally, was found to be of dark red colour.

Microscopic Examination.—Lymph glands showed the same structure as that described above in the biopsy. The spleen was packed with a mass of cells uniform in character and of the same appearance as in lymph glands and other organs. They were of the size of a small lymphocyte with a darkly staining nucleus and a narrow rim of cytoplasm. There was only some scanty necrotic spleen pulp present. The liver showed a marked interacinous infiltration with the same type of cell. There were also large islands of packed masses of these cells present. Kidney: Sections showed an infiltration around the tubules, and there were also small masses of cells of the same character. Bone marrow consisted of a crowded uniform mass of cells as described above. Amongst them there were only a few erythroblasts and some fat tissue.

Discussion.

Dr. Knyvett Gordon, who kindly examined for us some sections, expressed his opinion that in view of the uniformity of cells he would regard it as lymphosarcoma. Dr. Parkes Weber, to whom we are very much indebted for his keen interest in the case, thought it to be a case of lymphatic leukæmia. In our opinion these two views are not contradictory, but lend support to our conception regarding the relationship between lymphosarcoma and leukæmia.

The patient had a generalised enlargement of glands for very many years. We assume that it was a case of benign aleukæmic lymphadenosis. The

blood-picture when we first saw him was still normal. The histological picture of the gland dissected in vivo excluded the possibility of a previous existence of Hodgkin's disease. Such cases with an acute "poussée" are met with frequently in literature, but they are generally characterised by the appearance of large cells in the tissues and in the blood.

The most striking feature of this case was the uniformity of small lymphocytes found in all organs, and in the mediastinal and retroperitoneal glandular masses. Dr. Knyvett Gordon rightly remarked that this structure resembled more the type usually described as lymphosarcoma, but that "the essential feature of lymphatic leukæmia is a mixture of lymphoid cells ranging from small lymphocytes through large lymphocytes and lymphoblasts and up to the primitive lymphoidocyte."

The problem is somewhat similar to that of "leukosarcoma" of Sternberg. This author described cases with tumour-like infiltrating growths, especially mediastinal, mostly associated with a leukæmic blood-picture. The cells characterising his cases (just as the cases of Parkes Weber,[4] Scherf,[5] &c.) were of the large type in the blood and also all organs, and the tumour-like masses were permeated by the same type of large lymphocytes. Sternberg considered these cases as distinct from ordinary lymphatic leukæmia, and separated them together with the chloromatosis into a distinct group termed "leukosarcomatosis."

This classification, however, has not been accepted by the majority of hæmatologists. Naegeli,[6] e.g., points out that it is erroneous to consider the large cells, as Sternberg does, as tumour cells, since similar histological pictures are frequently met with in ordinary leukæmias, especially those with an acute course. Pappenheim[2] says that the uniformity of these large cells is due only to the acute precipitated maturation of the cells. He considers also the small-celled lymphosarcomatosis of Kundrat as a variety of "the leukæmic and aleukæmic parenchymatous diseases of the hæmatopoietic tissues" only, and speaking of Sternberg's leukosarcoma he points out that there are not only large, but also small, celled diseases of that type. The generalised benign hyperplastic, as well as the primary malignant diseases of the hæmatopoietic system, are, in his opinion, manifestations of the same pathological process. There is, moreover, only a gradation in the biological "avidity" of the cells, and the malignant type (Pappenheim calls it sarcoid type) shows, in addition to the primary multiple proliferations, also secondary embolic metastases due to an overflow from the rapidly proliferating primary lesions.

Our case showed a general enlargement of glands, and several of them from different parts of the body when examined exhibited the same histological structure. The spleen, liver, kidneys, and bone marrow were found to be infiltrated with the same type of cells. Dr. Knyvett Gordon is further of opinion that the changes in the liver, kidneys, and bone marrow were due to metastases, but this is difficult to prove, and in our view the generalisation of the same type of cell indicates only a primary generalised affection of the hæmatopoietic tissues.

It was very instructive to watch the development of changes in the patient's blood. When we first examined it, the total as well as the relative number of white cells was completely normal. Then a relative lymphocythæmia appeared, with a majority of small lymphocytes. There was also a considerable number of myelocytes present. With the development of the disease the relative number of lymphocytes increased steadily till ten days before the patient's death we got a total count of 60,000 white cells and a differential count of 87½ per cent. lymphocytes, of which the great majority consisted of small lymphocytes. These figures went on increasing up to the patient's death. These changes in the blood could certainly not have been an agonal manifestation, but an inherent symptom of the disease. It is interesting to note that the red cells remained normal and were only slightly affected just before death.

The usual symptoms met with in acute leukæmia—i.e., stomatitis, high temperature, and hæmorrhages—were not of a very marked character. It is interesting to note that Sternberg[7] considers these symptoms as having nothing in common with the leukæmic process itself, but as being due to septicæmia caused by a secondary infection.

Our case gives, in our opinion, a very good illustration of the relationship between lymphosarcoma and lymphadenosis (leukæmic and aleukæmic). Lymphosarcoma, as originally described by Kundrat and Paltauf, is a localised affection of a group of lymphatic glands, never generalised, but infiltrating surrounding tissues and spreading by way of the lymphatics into the neighbouring groups of glands. The penetration into the tissues in the case of a lymphosarcoma is different from that in true sarcoma or cancer. Here the cells never destroy muscles or vessels, but infiltrate the tissues in the same way as in some cases of ordinary leukæmia. For example, vessels are surrounded by the cells, the walls are infiltrated, but the lumen remains free. The infiltrated organs preserve their function and atrophy only late (Rieux).

Spleen and liver are rarely affected. The opinion of authors about the character of blood changes varies; some find a relative lymphocythæmia, others a relative diminution of lymphocytes. The total amount of white cells is in most cases not affected. There are thus usually no marked changes in the blood, and for that reason alone would our case also be quite remarkable. The histological structure of the affected tissues in lymphosarcoma shows an extraordinary proliferation of lymphocytic cells, which are pressed tightly against each other. The cells are uniform in character and mostly of the small lymyphocyte type, but the nuclei have frequently a vesicular aspect and are surrounded by a narrow margin of cytoplasm. There is but little reticular stroma present. There are thus only differences in degree of infiltration between lymphosarcoma and leukæmic and aleukæmic lymphadenosis, while the uniformity of cells makes the position of lymphosarcoma similar to that of Sternberg's leukosarcoma.

A characteristic feature of lymphosarcoma is its limited localisation. But just as myelomas, which are considered by Pappenheim[2] as belonging to the same group of primary diseases of the hæmatopoietic tissue, may be localised or generalised—i.e., associated with a general affection of glands and the spleen (Lubarsch)—so also lymphosarcoma may occur in a localised and a primary generalised form. Hirschfeld[8] mentions such a primary generalised case of lymphosarcoma.

While speaking of the generalised and localised forms we must emphasise that in our opinion even ordinary leukæmia does not commence suddenly as such in a generalised form, but that it is preceded by a shorter or longer period of latency, and probably begins first under the influence of some irritating agent in a group of glands or in the spleen and only gradually becomes generalised.

In Rieux's[1] opinion aleukæmic lymphadenosis and lymphosarcomatosis cannot be separated from each other, because their fundamental basis is the same. He considers the histological differences between them as not of great importance. The essential feature in both is the hyperplastic proliferation of lymphocytes, and there is only a difference in degree of aggressivity between these two clinical forms. In the ordinary form of lymphatic leukæmia the proliferation of cells is often not limited to the glandular structures from which they originate, but they infiltrate the capsule as well as the surrounding tissues. This feature of leukæmia was the reason why Banti[9] regarded it as sarcoma. Ribbert,[10] who looked also upon leukæmia as a generalised neoplasm, did not accept the term sarcoma for it, because he reserved this definition for tumours originating from connective tissue. He thus termed cases with a proliferation of young large cells as lymphoblastoma, while for

tumours characterised by small riper cells he used the term lymphocytoma.

A very interesting point of view is taken by Jolly.[11] He states that those cases of leukæmic and aleukæmic lymphadenosis which show a predominance of a certain type of cell have an aspect similar to the round-celled sarcoma. The difference would lie mostly in the absence of reticular stroma in the case of the latter.

If we take into consideration that many modern hæmatologists like Ferrata,[12] find evidence indicating a relationship between the connective tissue cells and the cells in leukæmic proliferation, this view would not appear unfounded. Fineman[13] points out that in his case of microlymphoidocytic leukæmia he found in the tissues all the morphological stages of metaplasia from a connective tissue cell to his micro-lymphoidocyte. To quote his words: "There are typical elongated connective tissue cells with the clear, pale, almost homogeneous cytoplasmic processus and vesicular pale nuclei. The next cell in the process shows a shortening of these processus. Then, again, a cell may be completely rounded out or oval in shape." If this be so, one would be rather inclined to consider sarcoma and the leukæmic and aleukæmic proliferation as very closely related to each other.

But any attempt at classification must bear here a temporary character as long as the ætiology of both leukæmic diseases and sarcoma remain unknown. We may come with Jolly[11] to the conclusion that "leukæmias represent pathological appearances intermediary between hyperplastic and neoplastic reactions, and their study may thus be able to throw also some light upon the pathogenesis of malignant tumours."

Conclusions.

The points of interest in the case described above are: 1. A benign aleukæmic lymphadenosis with a history of many years takes suddenly the form of a malignant lymphadenosis. 2. The uniform character of cells, corresponding with the histological picture of lymphosarcoma. 3. The generalised character of this malignant process. 4. The change of the aleukæmic blood-picture into a leukæmic one. 5. Evidence of relationship between leukæmia and lymphosarcoma.

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FISHERMEN AND ABERDEEN ROYAL INFIRMARY.—Fishermen of Fraserburgh have undertaken to contribute 30*s.* per boat per annum for the next three years in response to the appeal for the proposed new Royal Infirmary at Aberdeen.

ST. BARTHOLOMEW'S HOSPITAL.—Lord Stanmore, the treasurer, reports the excess of total income over expenditure for last year as £9465. Expenditure amounted to £191,648, and the number of in-patients dealt with was 9,802, while 666 out of 688 beds were in constant use. During the year close on 3000 cases of street accidents or illness were brought in by motor ambulances belonging to the Corporation or the London County Council. Lord Stanmore refers to the scheme for the erection of an operation theatre block, a new surgical ward block, and recreation rooms for the nursing staff, at a cost of £200,000.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.

THE RESULTS OF RAMMSTEDT'S OPERATION

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THE immediate problem to be faced in these cases is how best to tide the infant over the period during which the obstruction of the outlet of the stomach is threatenening life by starvation. As to whether this should be effected by medical measures alone or whether surgical interference is justified is still a matter on which there is considerable diversity of opinion. The question can ultimately be decided on experience and statistical study of the results obtained by either method, but the disease is relatively rare and, furthermore, suitable surgical treatment has only been applied to it during the last few years. Groups of statistics still show great variations in the results achieved by both methods, for these depend more on the environment of the patient than on the disease. for early and prompt diagnosis is the first essential to successful treatment whether by medical or surgical measures. This is well shown in the cases in this series, in which the mortality in the private cases is nil, whilst in "hospital" cases treated by exactly the same methods it is 48 per cent. For statistics to be comparable they must be of cases drawn from the same strata of the population and, if possible, from the same neighbourhood. Early diagnosis and prompt treatment would appear to favour the surgical results to a greater degree than the medical ones in comparable groups of cases, for in selected cases the surgical mortality is probably not more than 5 per cent.; moreover, where the mortalities in the two groups of cases equal, there appear to be some inherent disadvantages in treatment by medical measures alone. Cases so treated demand months of highly skilled nursing, with most meticulous attention to every detail of diet and hygiene, with its attendant anxieties and strain. With surgical treatment the time required is much shorter, and in the course of two or three weeks, as a rule, the child is fit to return to its mother in an ordinary home—in not a few cases in this series the infant has returned home before the tenth day. The degree of obstruction undoubtedly varies in different cases, and there is no method of diagnosing this accurately early in the course of a case; were it possible to do this it might be feasible to suggest medical treatment alone for the slighter cases and reserve operation for the higher degrees of obstruction. To try medical treatment at first and then change to operation at a later stage, when the child has gone further downhill, is to court disaster in the average case. As far as can be ascertained, cases that have recovered, whether treated medically or surgically, grow into healthy children free from digestive troubles, but such study of cases has not been sufficiently prolonged to be certain of the end-results. Undoubted cases are on record in which adults have been found suffering from obstruction due to hypertrophy of the circular fibres of the pyloric musculature; such cases may be lesser degrees of the infantile condition which have survived to adult life. It is not unreasonable to suppose that cases cured by medical means alone may add to the number of such adult cases. Operation by division of the muscle and herniation of the mucosa would appear likely to avoid the risk of incompetence of the pyloric canal developing later.

The cases in this series, 90 in number, were, almost without exception, all admitted under the care of my colleague Dr. Leonard Parsons, and he has been responsible for the diagnosis and the pre- and post-operative treatment. With one exception, all of the cases have been operated on in the Birmingham Children's Hospital, the private patients being admitted into the paying wards of the hospital.

rom the time the series starts in 1919 it has been is rule to have treated by operation all cases of ıe disease admitted under him, and many of the ıtients were extremely wasted and ill, and very ɔor operative risks, even for this disease. Two ıses died during the short period of preparation apsing between admission and operation. Diagnosis as made on clinical findings, supplemented in a ɔrtain number of cases by the X ray examination. he latter is not now used as a routine, though for period it was used regularly. It is somewhat ɔsetting to the infant and is not necessary to tablish the diagnosis. In two cases the diagnosis as at fault; in one, early in the series, the child ıd pylorospasm only and recovered, in the second ıse the child had a pyloric stenosis without hyper-ophy, and accompanying this was a stenosis of the ıodenum—it died. As a rule, before operation the fant has a few days' treatment in hospital, with ctal and stomach lavage daily, and immediately ɔfore going to the theatre a subcutaneous saline is ven.

The Anæsthetic.

In the majority of the cases nitrous oxide and ɔxygen has been used, and it is now the anæsthetic choice. It is less toxic than a mixture of ether and ıloroform used in the early cases. The latter was equently followed by hyperpyrexia, whereas with trous oxide, though a temperature of 100° F. is casionally seen, as a rule no reaction occurs, and the ıild quickly recovers. Its administration requires eat skill, and I have to thank Dr. Harry Feather-one for his assistance with these cases. Relaxation the abdominal wall is good as a rule, though casionally a little ether may be necessary to supple-ent the nitrous oxide to attain this. In the series 90 cases, 36 died, a mortality of 40 per cent.

Mortality in Private and Hospital Cases Compared.

As has been frequently noted by all observers, the ortality of the private cases is considerably less an that of those from the hospital class. The lative proportions of these two types of case is a ɔint which must be borne in mind when judging ıtistical results. In the present series there were private cases, and all of these made good recoveries. we deduct these cases, the mortality amongst the hospital cases was 48 per cent.

Several explanations have been offered as to the use of the strikingly different mortalities of the ɔspital and private cases. That it is not due to the ıfavourable results of treatment in an institution opposed to treatment under home conditions, is own by the present series, in which private and ɔspital cases were (with one exception) all treated the same institution though in different wards. every way the nursing and medical care of the two oups was comparable, except that, as a rule, the ımber of patients at a given time would be greater the public than the private wards, and it is possible at this may have played some part in bringing ɔut the striking difference between the two groups, ɔking to the susceptibility of these children to teric infections in the post-operative period. Such fections are known to spread if the number of fants in a unit is proportionally high. A more ɛely explanation of the difference between the two oups is the relatively earlier diagnosis in the private ses, and this, as has already been stated, is the y to successful surgical treatment. Thus in a oup of private cases the average time which mptoms had existed before operation was 13 days, a comparable group of hospital cases it was days for cured cases and 25 days for cases that ed. The importance of these figures becomes anifest when we realise that these infants often se 1 per cent. of their body-weight each day that eatment is delayed.

Rammstedt's Operation: Its Results.

Rammstedt's operation is simple and efficient, it n be carried out speedily, and causes little operative trauma. Briefly, it consists of a longitudinal incision into the thickened pylorus. By this the thickened circular muscle-fibres are divided right down to the mucosa, thus allowing the mucosa which is tightly infolded in the grip of the muscle to expand and fill the gap in the incised muscle. By this means the pyloric canal becomes competent to allow the stomach contents to pass. The risks of the operation are: (1) operative shock; (2) hæmorrhage; (3) perforation of the mucosa of stomach or duodenum; and (4) inadequate freeing of the mucosa.

Of the 36 cases which were fatal, 14 died within 24 hours of operation, and in four of these cases bleeding from the divided muscle was the cause of death, and in the other ten patients no cause could be found other than inanition and the shock of operation. These cases were all desperately bad beforehand and unable to survive even the slight trauma inflicted. Looking over the histories of the ten cases, it may be fairly said that they were too late to survive with any form of treatment, as it is a striking fact that in this group the average time during which symptoms had existed was no less than 50 days, which is double that of the average fatal case, and three times that of the cases which recovered. Every precaution must be taken to eliminate shock by speed in operating —suitable anæsthesia, warmth before, during, and after operation, and by subcutaneous and rectal salines before operation and after returning from the theatre. Even with such precautions such late cases will have a heavy mortality, though occasionally one recovers even when every factor is against this in late diagnosis and severe inanition. Thus one case in which symptoms had been present for 45 days and the patient had lost 25 per cent. of the birth weight (7½ lb.) made a good recovery and left hospital in under three weeks.

In the majority of the cases the hypertrophied pylorus is relatively avascular, and oozing from the divided margins is not troublesome; in occasional cases there is troublesome oozing or bleeding from a minute vessel in the subserous coat. The loss of four cases in this series from hæmorrhage indicates the danger from this source, a danger which was insufficiently realised in the earlier cases. The tissues are so fragile that it is almost impossible to deal with the bleeding-point by ligation, though this may sometimes be possible. Further danger is to be feared from hæmorrhage occurring from the margins of the incision during the period of reaction following the operation, though hæmostasis may appear to be perfect when the abdomen is closed.

With nitrous oxide anæsthesia the necessity for speed in operating is not so great as formerly and more time can be spent in attention to the detail of hæmostasis. A fragment of the rectus muscle taken from the margin of the wound, and applied by steady pressure for one minute to the bleeding area, has been the most successful hæmostatic in my hands. One of the more obvious risks of the procedure is perforation of the gastric or duodenal mucosa in the depths of the incision. This can be obviated by care in dividing the muscle and by the recognition of the sudden thinning of the hypertrophied muscle at the duodenal end of the canal. There were no deaths from this cause in the present series.

When the operation is completed the incision must gape widely and the mucosa be freely herniated through the gap; the muscle itself is very loosely attached to the underlying mucosa and is very brittle and easily divided by a blunt instrument; it is easy, however, to overlook a few circular strands of very tough fibres lying next to the mucosa. If left undivided these restrict herniation and may be responsible for allowing scar formation to close up the canal if the child survives a few weeks. In such cases the child makes a bad recovery or dies some weeks after operation with symptoms of stenosis, manifest by vomiting, reappearing a fortnight or so after operation.

Cases which survive the immediate risks of operation still require the greatest care in the post-operative

period. As a rule, the length of this period bears a direct relationship to the length of time the symptoms have existed before operation. The chronic gastritis and hugely dilated stomach resolve but slowly; whilst the atrophic intestine is ill-adapted to resume function at once. Many deaths occur in this post-operative period from the third to as late as the fiftieth day. If breast milk is available the risks of this period are definitely lessened by its use. All forms of artificial feeding appear to be attended with increased risk, though the use of lactic acid milk appears to be attended with less danger than other substitutes. Not a few of the cases have a terminal diarrhœa with green stools. In others steady loss of weight occurs and the child gradually fades out. A too rapid increase of diet, although it is attended by a satisfactory rise in the weight at first, carries with it the risk of an enteritis from non-absorption caused by the great atrophy of the small intestine which is present. This atrophy takes two or three weeks to adjust itself to the new conditions resulting from the opening of the pylorus. Cases that run a favourable post-operative course often gain no weight for the first fortnight, a slight loss in the three days following operation is followed by a period during which the weight is maintained, and then the weight begins to increase very slowly—at the end of a fortnight the weight at the time of operation is reached—onwards from that time the rate of increase may be allowed to accelerate more rapidly. As a general rule, cases which come to operation within a week or two of the onset of symptoms have a quiet convalescence, whereas cases in which the operation is late cause constant anxiety owing to the gastritis and intestinal atrophy which is present, and not a few of these die some weeks after operation from these causes.

Conclusions.

1. All cases admitted to one hospital unit during the years 1919-26 were submitted to Rammstedt's operation. The mortality in 90 cases was 40 per cent. 2. Included in the series were 15 private cases. None of these died. 3. The great difference in mortality-rates in the "hospital" and "private" cases is mainly due to earlier diagnosis in the latter cases. 4. If all cases of the disease could be operated on within 14 days of the onset of symptoms, the mortality would probably not be more than 5 per cent.

AN OUTBREAK OF ILLNESS CAUSED BY *B. DYSENTERIÆ* FLEXNER.

BY S. H. WARREN, M.R.C.S. ENG., D.P.H. LOND.

(*From the Bacteriological Laboratory, College of Medicine, Newcastle-upon-Tyne.*)

THE following outbreak, at first regarded as food poisoning, proved to be due to infection with *B. dysenteriæ* Flexner and, unlike the sudden explosion of illness usually met with in food poisoning, consisted of a series of cases separated by intervals of a few days. A very careful inquiry into the sources of the foodstuffs ingested was made by the health authorities at the time, and no evidence tending to incriminate any particular item could be obtained, although a sample of tomatoes, which fell to some degree under suspicion, was sent to the laboratory for examination and a proteus-like organism was isolated therefrom.

History of the Outbreak.

The illness was entirely confined to two families who lived together in a two-roomed flat, sharing the same scullery and w.c., but cooking and eating separately. The larger family (M.) consisted of father, mother, and three young children, of whom the three children alone were affected, and of these two died. The second family (B.) consisted of an aged man and an adult daughter; the former suffered from diarrhœa and was found to be passing the same dysentery bacillus while the latter showed no evidence of infection.

The first case, J. J. M., aged 6, was taken ill on July 2nd with abdominal pains, desire to defæcate, and vomiting followed later by diarrhœa with foul-smelling, greenish yellow stools. He died on the 4th, having been seen by a doctor for the first time a few minutes previously. No bacteriological examination was carried out in this instance.

The second case, T. W. M., aged 2, was taken ill on the afternoon on July 5th, the day following his brother's death with a sudden attack of abdominal pain, followed by diarrhœa and just before death, which occurred next day, by vomiting. A post-mortem examination, held on the 6th, showed redness and inflammation of the mucous membrane of the large intestine throughout its entire length, its contents consisting of mucus and thin yellow fluid. Slight injection of the stomach and the lower end of the ileum, with enlargement of Peyer's patches and the solitary follicles, was also noted. This child was said to have suffered from diarrhœa 18 months previously. The brain, spleen, liver, stomach, and intestine were received at the laboratory on the 7th, and the strain of *B. dysenteriæ* Flexner to be described was isolated from all of these organs.

The third case, R. M., aged 5, the remaining brother was taken ill on the evening of July 9th, or four days after the onset of illness in the second case. He suffered from diarrhœa and the mother stated that there was blood and mucus in the stools, an observation later confirmed in hospital. He appears to have suffered a comparatively mild attack and subsequently recovered. This boy's fæces were examined as were also those of the rest of the family on the 8th, the day before his attack began, and the dysentery bacillus was isolated, but other specimens four and 18 days later were negative. His blood, when tested on the 19th, agglutinated both his own organisms and also the X strain of *B. flexner* up to 1 in 250, and the Z strain of *B. flexner* to 1 in 12½.

The fourth case, Mr. B., aged 70, suffered merely from an attack of diarrhœa on July 11th (two days after Case 3) and his fæces, examined next day, yielded the same organism although negative later on the 28th. He was treated by a doctor, being put to bed, and recovered. His blood agglutinated on the 22nd 1 in 125 to the X and Z strains of *B. dysenteriæ* Flexner, and also the organism recovered on the 13th. His fæces when examined seven months after the outbreak were free from dysentery bacilli.

Members of the two families who showed no signs of infection.—The fæces of Mrs. M., aged 32, the mother of the family, were examined on July 8th with negative result, but when the examination was repeated 20 days later the same strain of *B. dysenteriæ* was once more isolated. Her blood also agglutinated the X and Z strains of *B. dysenteriæ* Flexner to 1 in 25 on the 19th. The fæces examined seven months after the outbreak were free from dysentery bacilli. Examination of the fæces of Mr. M., the father, proved negative on two occasions, but his blood on the 19th agglutinated *B. flexner* X to 1 in 50 and Z to 1 in 12½. Lastly, the remaining member of the two families, A. B., aged 25, gave entirely negative results in two examinations of her stools and her blood was not examined.

Summary.

It will be seen, therefore, that of seven people involved in these two families, four were infected with a Flexner dysentery bacillus. In one case the organism was recovered post mortem, and from the other three from the stools during life. Further, the bloods of all four agglutinated the organism recovered as well as standard strains of *B. dysenteriæ* Flexner. In all except the two fatal cases the bloods were examined for the presence of agglutinins of *B. enteritidis* Gaertner, *B. aertrycke* (Mutton and Nenport), but always with negative results.

The bacillus isolated from all these sources invariably gave the reactions and showed the general characters of *B. dysenteriæ* Flexner. When tested against the Oxford Flexner type sera they gave the uniform similar results recorded in the following table:—

Strain ..	1 in 25	1 in 50	1 in 125	1 in 250	1 in 500	Cont.
Serum V ..	+	±	−	−	−	−
,, W ..	−	−	−	−	−	−
,, X ..	+	+	+	+	±	−
,, Y ..	+	±	−	−	−	−
,, Z ..	+	+	+	+	±	−

Repeated absorption experiments were subsequently carried out with anti-sera prepared in this laboratory from the organism isolated and from different strains

B. dysenteriæ Flexner types X and Z, and also th sera obtained elsewhere, but no clear-cut results re ever obtained, and the results all pointed to a nsiderable admixture of both types in the structure the organism isolated.

Discussion.

Although this outbreak cannot be regarded as " food isoning " in the strict sense of the term, or comrable to the instances of the sort quoted by Savage d Bruce White as due to the dysentery group of ganisms, food cannot be precluded as a possible nicle of infection. It was not possible actually determine the primary source of infection, but, Nabarro suggests, the dysentery infections may much more frequent in this country than is mmonly supposed. We have actually isolated veral strains of Flexner dysentery bacilli from the ols of children suffering from diarrhœa as patients the Children's Hospital here.

In this instance no definite history of dysentery uld be obtained. One child (Case 2) is said to have fered from diarrhœa 18 months previously, the ise of which is unknown. Mr. M. had not served the army or been abroad. Mr. B. had been a lor but only on local fishing boats and had not ited foreign ports. Mrs. M. was at least a temary carrier as the organism was isolated from stools on one occasion, about 14 days after the ies started, but she appeared to remain well. doubt in the confined condition under which these nilies lived there was ample opportunity, using same scullery and w.c., assisted probably by flies, both families to become infected.

As regards the finding of the dysentery bacillus all the tissues of Case 2, it is the universally accepted perience that dysentery bacilli hardly ever invade blood stream and can rarely be isolated from the id organs post mortem. The writer was not present the autopsy, but the organs were sent to the oratory later in separate vessels. The usual liminaries of sealing, &c., were carefully carried .

The outbreak showed this dysentery bacillus to be cially virulent for children and the aged, and it s actually fatal to two children after a very short ess. Full grown adults appeared not to be affected. ally, the diagnosis as to the cause of the outbreak s only possible as a result of fairly extensive teriological investigation.

wish to express my indebtedness and thanks to . H. Kerr, medical officer of health, Newcastle-upon-ne, for the clinical history and the specimens for mination in this investigation.

OBSERVATIONS ON THE SCHULTZ-CHARLTON REACTION.

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N carrying out these investigations with scarlet er antitoxic sera it has been assumed that the ultz-Charlton reaction provides a reliable indication to the therapeutic value of the serum. But before ling with this aspect there are some points with ard to the test which may be of interest.

First, as to the amount of the injection; it has n the custom to inject 0·2 c.cm., but it was thought sible that better results might be obtained if a ger quantity were used, especially in reducing the centage of cases of scarlet fever which fail to give Schultz-Charlton reaction. With this object in w a number of patients were given two injections a serum (or two sera), the first injection being c.cm., the second 0·5 or 1·0 c.cm. In each instance reactions were all positive or all negative. In se cases which gave positive results the areas of blanching caused by the larger injection were increased, but not proportionately to the difference in the amount. In other words, increasing the quantity of serum does not increase the probability of blanching, and though it causes no more inconvenience to the patient there does not appear to be any advantage in it.

Secondly, with reference to the strength of serum; when the test is being used for diagnostic purposes, undiluted or a 1 in 10 serum gives the best results. It is more common to find patches of erythema in the blanched areas than with higher dilutions, but this erythema fades in the majority of cases within 24 hours. A larger percentage of positive reactions is obtained than with higher dilutions and blanching usually appears earlier by several hours.

The action of scarlet fever antitoxic serum injected intradermally was demonstrated in the following manner.

A patient, injected on the first day of the rash, showed large areas of complete blanching (2 in. by 1½ in.). Three days after the test—i.e., on the fourth day of the rash (and fifth day of disease), Dick toxin and control were injected intradermally in two blanched areas. In addition, Dick toxin and control were also injected where the rash was still prominent. Twenty-four hours later the Dick toxin injected into the rash produced an area of intense erythema (1 in. by ½ in.), showing distinctly through the rash, and which lasted for three days. No such reaction occurred in the blanched areas. This test was repeated on another patient with similar result. Thus the serum injected was more than sufficient to neutralise the toxin causing the rash, if this is the explanation of the reaction. In this connexion absence of desquamation in the blanched areas, when the latter persist until the rash fades, has been observed in a number of cases.

In estimating the therapeutic value of scarlet fever antitoxic sera by means of the Schultz-Charlton reaction, the degree or intensity of blanching and the dilution of the serum must be taken into consideration. In many cases the blanching is never complete, the rash being only partially obliterated, and this type is usually evanescent. In another group of cases the blanching is complete but is gradually encroached on by the rash and eventually disappears. In a third group the blanching is complete and the area and intensity remain undiminished until the rash fades. I take this to mean that in the first group the antitoxin is insufficient to neutralise the toxin causing the rash; in the second that it is only just sufficient, and in the third that it not only neutralises the toxin present at the time, but also any subsequently invading the area from the blood stream or injected intradermally.

With regard to dilution, two sera may give practically the same results until high dilutions are employed when the difference in potency becomes apparent.

By making these observations sera from different strains have been compared and the advantage of using concentrated sera has been shown. In one series of cases concentrated serum gave good results when diluted 1 in 16,000, but no blanching could be obtained with the unconcentrated beyond 1 in 8000. The central erythema, already referred to, was found to occur with about equal frequency with concentrated and unconcentrated sera, which would suggest that it is not a protein reaction. True serum rashes do occur in the form of urticarial weals confined to the blanched area three to four days after the injection.

These observations were made in a series of 132 cases, in 97 (72·5 per cent.) of which there was blanching. In my previous series [1] of 168 cases, 72·6 per cent. reacted. Thus there are some 37 per cent. of cases of undoubted scarlet fever which failed to blanch with specific sera. But in considering these figures it must be pointed out that in a number of

[1] Metropolitan Asylums Board Annual Report, 1925–26, p. 171.

cases only high dilutions were used. If only those cases are taken which were injected with undiluted or 1 in 10 serum, the percentage of negatives falls to 22 per cent. Another factor to be borne in mind is the " age " of the rash. A rash that has been present three days is less likely to react than on its first appearance. The actual figures in this series are as follows :—

1st day rashes ..	..	83·3 per cent. positive.
2nd ,, ,, ..	..	75·0 ,, ,,
3rd ,, ,, ..	..	50·0 ,, ,,

All cases tested on the fourth day were negative, and it seems probable that the reaction can very rarely be obtained on or after the fourth day. The average interval before blanching occurred was 14½ hours, the shortest time being 6½ hours. In two cases blanching did not occur until at least 36 hours after the injection. Normal horse serum was used as a control in amounts varying from 0·2 to 1·0 c.cm. in 17 cases, and no blanching occurred.

Non-Specific Sera.

In February last, at the suggestion of Dr. R. A. O'Brien, we started using non-specific sera for the Schultz-Charlton reaction. The sera used were prepared from the streptococci of erysipelas, puerperal fever, cellulitis, and from a case of streptococcal toxæmia. The results were surprising. The following table gives some of the results. In each case the various sera used were injected at the same time.

Case No.	Sc. fever antitoxic serum. Dil. 1 in 10.	Puerperal serum.	"Cellulitis" serum.	"Erysipelas" serum.	"Streptococcal" toxæmia serum.	Multivalent antistrept. serum.
5	Pos.	Neg.	Neg.	Pos.	—	—
7	V. sl. reac.	,,	,,	,,	—	—
11	Pos.	,,	—	—	Pos.	Pos.
12	,,	,,	—	—	,,	,,
13	,,	,,	—	V. sl. reac.	—	,,
17	,,	Pos.	—	—	Neg.	,,
18	,,	,,	—	—	—	—
20	,,	,,	—	—	—	—
23	Neg.*	Pos. (*undil.*)	Neg.	—	—	Neg.*
28	Pos.	Pos.	Pos.	Pos.	—	—

V. sl. reac. = Very slight reaction. * 1 in 10.

A scarlet fever serum, known to give good results, was used in each case as a control, and in no instance up to the present has this control failed to blanch when reactions have been obtained with non-specific sera. On the contrary the scarlet fever serum has in most cases produced larger areas. From the table above it will be observed that multivalent antistreptococcal serum was used. This naturally suggested itself when reactions had been obtained with several of the non-specific sera. The areas it produced were much larger than those of the control (sc. fever) serum when used undiluted, but when it was diluted 1 in 10 the areas were slightly smaller than those of the control.

This multivalent serum was prepared from numerous strains of streptococci which included two strains of scarlet fever streptococcus, and was taken from horses which had previously been immunised against scarlet fever toxin. If at some future date we find a number of cases reacting to a serum non-specific to scarlet fever, and not to scarlatinal antitoxic serum, further investigation of these cases may provide valuable information on the ætiology of scarlet fever.

ROYAL NORTHERN HOSPITALS.—The total income for maintenance of the Royal Northern group of Hospitals last year amounted to £81,454, as against £85,859 the year before. The total maintenance expenditure increased from £86,596 to £89,232, but this was partly due to the increased number of patients and partly to an additional 21,852 out-patients' attendances. An indication of the progress of the hospital is seen in the increase in the total income of the hospital, which in 1913 was only £24,608.

Clinical and Laboratory Notes

A CASE OF MULTIPLE DIVERTICULA OF THE JEJUNUM.

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VERY few examples of diverticula of the jejunu have been placed on record. James T. Case,[1] writin on diverticula of the small intestine other tha Meckel's diverticulum, collected only 17 cases recorde between 1854 and 1920. Helvestine,[2] writing two yea later, refers to 27 cases of false diverticula of t jejunum. In view of their apparent rarity in t small intestine the following record appears to worthy of publication.

A man, aged 70, was admitted to hospital in Augu 1920, suffering from the effects of prostatic obstructio and died from uræmia. A history was obtained, in additi to his urinary symptoms, of some digestive trouble whi was described as flatulence, and multiple diverticula of t small intestine were discovered at autopsy. The sm intestine—with the exception of the duodenum, which w free from diverticula—was removed and measured 6·3 metr in length. There were upwards of 50 diverticula, and th were limited to the first 2 metres of the intestine, the r of which showed no abnormality. They were divisible in two groups, large and small, and there were very few intermediate size. Small diverticula occurred throughc the whole length, but the large ones were limited to distance of less than the first metre, except for a solita large one which occurred, as a last example of the conditic 2 metres from the duodeno-jejunal flexure.

The first diverticulum arose from the mesenteric atta ment about 25 cm. from the duodeno-jejunal flexure, a then projected forwards on the right side of the gut, to whi it was bound by rather dense whitish adhesions. Th could easily be freed, when it was found that the diverticul was spheroidal in shape and communicated with the intesti by a narrow opening bounded at its margins by longitudin muscle-fibres. The sac itself was thin-walled, covered serosa, and measured 2·5 cm. in length and 1·5 cm. at widest part. About 5 cm. further down was a similar l larger diverticulum about 3·75 cm. in length and abc 2·5 cm. at its widest part. Another 9 cm. further on w a diverticulum of about the same size, but this ti attached to the left side of the intestine. Then followe large number of small diverticula which measured on average about 1 cm. in all directions. These projec directly backwards into the mesentery. Up to a distance less than 1 metre from the duodeno-jejunal flexure an there were about half a dozen large diverticula, usua attached to the intestine on the right side. For the remain of the distance they were all small except for the la diverticulum which terminated the series and was simi to those described in the upper part of the intestine.

At a distance of about 1·25 metres from the l diverticulum were two lipomata, each about 5 cm. diameter, arising in and situated on either side of mesentery, nearly opposite one another. They did contain diverticula. On opening the intestine the stom leading into the diverticula, large or small, were all abc 1 cm. in diameter. Those diverticula that were oper were found to be empty. There was no evidence diverticula of other organs beyond a small inflan diverticulum of the sigmoid colon.

Discussion.

Case[1] in 1920 made the first diagnosis of t condition by means of radiological examinatio E. L. Hunt and P. H. Cook,[3] writing in 1921, regard these diverticula as relatively common, an opini which is probably correct, and described them roughly pear-shaped, measuring about 3 cm. depth and 3 cm. in width. The openings into t intestine were about 1 cm. in diameter. All t diverticula went directly backwards into the mesente

[1] Jour. Amer. Med. Assoc., 1920, lxxv., 1463.
[2] Helvestine: Surg., Gynæcol., and Obstet., 1923, xxxv 1–5.
[3] Ann. Surgery, 1921, lxxiv., 746.

L. Braithwaite [4] described and figured a beautiful imen of multiple diverticula of the jejunum for h enterectomy was necessary. The diagnosis had n made by Dr. L. A. Rowden after radiological nination. The diverticula extend directly back- ls into the mesentery. Helvestine [2] described cases, the first of which is strikingly similar to one I have recorded.

ne patient, aged 70, suffered from the effects of an ged prostate which resulted in uræmia and death. diverticula were 58 in number, the largest in size being e nearest the duodenum. They were spheroidal in e, and the stomata which connected the diverticula the intestinal lumen were much smaller than the y of the diverticulum. This point is well illustrated in ure which displays the intestine laid open from the nesenteric border and shows the stomata leading into diverticula.

r Berkeley Moynihan,[5] in discussing these diver- la, remarks: "The pouches may be numerous, rarely larger than a walnut, are usually on the enteric side, and because of their large orifice do as a rule, retain food for long periods and do not, efore, often lead to serious complications." The ement that the diverticula have a large orifice, and this is the explanation for their not often leading rious complications, is not borne out by the present , nor by a number of other recorded cases in which point is mentioned. Where the diverticula are ll the orifice appears to be as large as the cavity, as soon as the diverticulum approaches its usual imal dimension—of something less in size than a ut—the orifice is actually much smaller than the ty. Typically it appears to be seldom more than n. in diameter, although in cases of perhaps long ding it is sometimes larger.

n interesting point in the present case is the fact all the larger diverticula turned forwards and rally to the right side, obtaining secondarily an chment by means of adhesions to the intestine f. This does not appear to have been noted in r cases. It would seem that in the early stage of nation of the diverticulum the line of least tance is directly backwards between the leaves of mesentery, but as the diverticula become larger generally tend to project much more on the right of the mesentery than on the left, and in some nces are actually turned forwards. Their pro- on, as a rule, on to the right side, may possibly be ained by the oblique attachment of the mesenteric , and the fact that resistance on the left side he mesentery may be greater than on the t side, owing to the disposition of the coils of stine.

arious theories have been advanced to explain the ation of these diverticula, and there can be no ot that they do not all have the same origin. vestine[2] mentions three factors: (1) traction by mesenteric vessels or traction following adhesions; legeneration of the musculature; and (3) increased a-abdominal pressure-tension, leading to increased a-intestinal tension, in the causation of which al and vesical tenesmus play an important part. static retention, as in Helvestine's first case, also in the present case, must be regarded as a very nt factor in the formation of acquired or false rticula of the jejunum.

the diverticula are entered by the fluid contents ne jejunum they cannot empty themselves by any ractile power of their own, for they possess in most nces very little musculature, and it is likely that tying is brought about by the pressure of the ounding coils of intestine in active contraction. t fluid contents do enter the diverticula is proved radiological examination, and the emptying is a process.

y thanks are due to Dr. H. Nockolds for permission ecord this case.

[4] Brit. Jour. Surg., 1923, xi., 184, July.
[5] Moynihan: THE LANCET, 1927, i., 1061.

A CASE OF MENINGITIS DUE TO A HÆMOPHILIC BACILLUS.

BY JOHN A. BRAXTON HICKS, M.D., M.R.C.P. LOND., D.P.H.,

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THE article by Dr. John F. Taylor in THE LANCET of June 25th (p. 1341) on Suppurative Arthritis Due to Hæmophilic Bacteria prompts me to publish a brief account of a recent case of suppurative meningitis due to similar organisms.

A female, aged 1 year and 3 months, in the children's ward of the hospital under the care of Dr. Donald Paterson, came to the post-mortem table 19 days after admission. Permission to examine the head only was given by the relatives. On examination, pallor and well-marked carpo-pedal spasm were present. The skull bones were greatly engorged, particularly the inner table, and the dura mater fairly firmly adherent to the brain tissue beneath. This adhesion had been caused by the presence of a thick layer of deep yellow-green pus which was plastered over the entire vertex and base of the brain. The pus was plastered on so thickly that in many places the normal contour of the sulci and convolutions was obliterated. The greenish-yellow colour of the pus mingling with the bright red colour produced by the vascular engorgement gave to the brain, when viewed *in situ*, a most striking marbled appearance. Pus was present in both the ventricles of the brain, but not to any marked degree. Middle ears and other sinuses that could be examined from within the skull showed nothing abnormal. The meningeal pus contained minute "influenza-like" bacilli.

Three samples of cerebro-spinal fluid sent to the laboratory for examination on the third, fifth, and seventeenth days after admission were all more or less similar in character, save that the last was very much more purulent than the other samples. The leucocytes of the first sample numbered 208 per c.mm., about 40 per cent. of them being polymorphonuclears, and there was only a light purulent coagulum. The last sample contained a large purulent deposit (leucocytes not enumerated) of an entirely polymorphonuclear type. All samples contained large numbers of a minute pleomorphic, Gram-negative bacillus. Visible growth was only obtained on blood-agar (4 per cent. of whole blood), and then only after 48 hours. The growth was fairly copious, and consisted of minute transparent colonies, like small watery streptococcal colonies, and these were non-hæmolytic. Morphologically, the bacilli were more pleomorphic in culture than in the direct films from the cerebro-spinal fluid. In the films the bacilli appeared as minute rods of varying length, and also as cocco-bacillary forms. In the cultures, in addition to these shapes and sizes, one encountered filamentous forms. In some respects, therefore, morphologically, the bacillus resembles the *Bacillus influenzæ*, but the tendency to filament formation is more marked.

With the greatest difficulty one set of subcultures was obtained on blood-agar, and an emulsion from one of these tubes was made. The emulsion was not actually counted, but it was approximately 1000 millions per c.cm. by opacity; 1 c.cm. of this emulsion (approximately 1000 million living organisms) was injected into the peritoneal cavity of a guinea-pig of 500 g. The guinea-pig lived 28 hours and died quite suddenly, having exhibited very few symptoms of illness and eating well till the last. The peritoneal cavity of the guinea-pig was much injected, and the visceral and parietal peritoneum fairly thickly coated with a layer of yellow-green pus, very similar to that seen on the meninges of the patient. The rest of the viscera showed the usual pallor associated with a toxæmia, particularly the kidneys. The bacilli were found in the pus, but all attempts to grow them from pus or heart-blood failed.

This difficulty of keeping the organism alive in subculture or after passage through animals is in striking contrast to the behaviour of *B. influenzæ*. The organism undoubtedly is similar to those so admirably described in a paper on Meningitis Due to Hæmophilic Organisms by H. Henry,[1] to which the reader is referred for excellent microphotographs and bibliography. It would appear to be in the same class as the organism Type "Brook" he mentions.

[1] Jour. of Path and Bact., 1913, xvii., 174.

This one failed to give a blood infection in animal experiments.

With other authors, I feel bound to express a grave doubt as to these hæmophilic bacilli of meningitis or arthritis being true *B. influenzæ*. During the war, I was concerned at the Royal Herbert Hospital with investigating an enormous amount of pathological material in the pandemic of 1918–19.[2] With regard to *B. influenzæ*, the following facts stand out (1) It is readily cultivated on suitable media; (2) it grows readily in subculture and does not die out if subcultured at intervals of 4–6 days; (3) it is practically innocuous to animals. In view of my experiences of the 1918 epidemic, one other thing interests me particularly, and that is that the hæmophilic organism I now describe produces in human beings a most intense meningitis, from which the organism can be readily recognised in the cerebro-spinal fluid and pus. Now in the pandemic of 1918 the laboratory at the Royal Herbert Hospital did not receive one spinal fluid or perform one autopsy on a case of suppurative meningitis, although the case-incidence of influenza was well over 2000. A case may have been missed, but certainly meningitis must have been extraordinarily rare.

Thus on cultural grounds from animal experiments, from clinical and epidemiological evidence, I consider that the hæmophilic group of bacilli responsible for the rare cases of meningitis and arthritis, or both, which have been recorded by various authors from time to time, must be kept entirely separate from the *B. influenzæ* of Pfeiffer, with which it has only a morphological resemblance and no true relationship.

A NOTE ON
FEMORAL HERNIA IN CHILDREN.

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THE following case came under observation at the Belgrave Hospital:—

A girl, aged 4 years and 2 months, was brought to the out-patient department on account of a swelling the size of a walnut in the right groin. It was just external to the pubic spine, and below Poupart's ligament; there was an impulse on coughing, and the swelling was reducible.

At operation a vertical incision was made over the swelling and the diagnosis of femoral hernia was confirmed. The sac was opened and found to contain omentum only; this was returned into the abdomen and a radical cure was performed.

Since the condition is rare in children, it may be of interest to submit the following statistics from the records of the Belgrave Hospital during the period 1908–27. The total number of herniæ that came to operation was 1098, of which 946 (86 per cent.) were inguinal, 148 (13 per cent.) were umbilical, and 5 or 0·4 per cent. were femoral. Of these five femoral herniæ, four occurred in females. The ages ranged from 4 to 7 years. (The age-limit for admission to the Belgrave Hospital is 10 years for boys and 12 years for girls.) Four were right-sided and one was left-sided. A parallel percentage is published by Prof. José Ribera y Sans, of the Hopital l'Enfant Jesus at Madrid, who [3] states that of 3098 herniæ 14 (0·4 per cent.) were femoral.

I am indebted to Mr. C. P. G. Wakeley for permission to publish this case.

[2] Braxton Hicks and Elizabeth Gray, An Investigation of Cases of Influenza, THE LANCET, 1919, i., 419.
[3] Eleventh Congress of the Société Internationale de Chirurgie, vol. i., "Hernie de l'Enfant."

METROPOLITAN HOSPITAL.—The total income of the Metropolitan Hospital, Kingsland-road, last year was £30,338 and the total expenditure £30,332. A new nurses' home, of which the Queen recently laid the foundation stone, is being erected at a cost of over £60,000, and will accommodate 60 nurses and six sisters.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 394.*)

SECTION OF DISEASES OF CHILDREN.

WEDNESDAY, JULY 20TH.

THIS Section met under the presidency of Pr JOHN FRASER (Edinburgh), and the subject of d cussion on the first day was

ACUTE PNEUMONIA IN EARLY CHILDHOOD.

Dr. CHARLES MCNEIL (Edinburgh) said that the purpose of the discussion he would use a series 558 cases of acute pneumonia admitted to his wa during the last six and a half years. Slightly m than half the patients were under 2 years old and these the mortality was 30 per cent., whereas in childr from 2 to 12 years the mortality was 5·7 per cent. i.e., the disease was far more common and m deadly during the first two years of life than in t succeeding years of childhood. Such facts suggest the question—What is the prevailing type in t fatal cases, lobar pneumonia or broncho-pneumoni Dr. Agnes Macgregor had investigated this point 100 fatal cases and had found that lobar pneumon as compared with broncho-pneumonia was a r disease. As a pathological process lobar pneumo was the simpler type; as a result of inflammatio fibrinous exudate was poured out into the alve but at this stage and later the framework of the lu including the bronchial walls, seemed to be undamag At the crisis a rapid resolution of the alveolar exud took place. Alveolar pneumonia was a more accur description of the pathological process than lob pneumonia, and explained better its clinical cou Broncho-pneumonia, on the other hand, was a m complicated process and showed much variation the extent and importance of the morbid changes. addition to the varying type of exudate in the alve and bronchi the interstitial framework of the lu showed inflammatory changes. Interstitial pneumo was a better term than broncho-pneumonia, for was the interstitial inflammation which determi the longer course of the disease, its greater immedi danger of extensive and fatal spread, and its grea risk of permanent damage to the lung tissues fibrosis, bronchitis, and bronchiectasis. Many poi were described by which the two types of pneumo might be distinguished during life, but Dr. McN suggested that the cardinal differential signs were o two: the duration of fever and the rapidity resolution. There was long fever and slow resolut in broncho-pneumonia, compared with short fe and rapid resolution in lobar pneumonia. Fever a consolidation persisting over a period of two we indicated broncho-pneumonia. In many cases differential diagnosis was not difficult, but one clini type of pneumonia which was not uncommon presen difficulty—namely, that in which there was extens consolidation limited to one area of the lungs, type sometimes described as "confluent bronc pneumonia." These cases were especially frequ in the first year of life, were usually accompan by early empyema, and could in no way be distinguis during life from broncho-pneumonia.

Dr. McNeil went on to consider reasons w pneumonia was so frequent in the hospital class child under 2 years of age, and why it tended so of to assume the broncho-pneumonic type. He thou it possible that the causal organism might be differe but bacterial agency alone did not explain the h mortality and the incidence of the disease at a spe age-period, and amongst other functions the mysteri but powerful influence of constitution might play important part. It might be that the common ag in man, the pneumococcus, tended to produce in lungs of the youngest children a type of inflammat which was called broncho-pneumonia; that t tendency definitely weakened after two years,

s still evident until, say, five years, and that after at age the reaction changed to that extensive eolar exudation with little or no interstitial inflam-tion which was called lobar pneumonia. The luence of a natural age-constitution was not, wever, sufficient, for pneumonia was rare in healthy d well-cared-for children of any age. There must o be a deterioration of pulmonary function produced bad environment and hygiene, and the influence climate and season also came into play.

The Pathological Aspect.

Dr. AGNES MACGREGOR (Edinburgh) dealt with the hological aspect of the subject. Of 100 consecutive es of pneumonia examined post mortem at the yal Edinburgh Hospital for Sick Children, 81 were children under 2 years of age and 89 were cases of ncho-pneumonia; of the latter, 89 per cent. re bilateral, and 77·5 per cent. were of the confluent e and exhibited massive consolidation in at least lobe. In lobar pneumonia the freedom of the nective tissue framework and lymphatic system the lungs from inflammatory infiltration was a arkable feature. There was no persistent lym-ngitis, the inflammation was located in the alveoli, se walls possessed no lymphatics. The alveolar ta showed congestion, œdema, and desquamation pithelium, but the exudate was poured out into alveolar spaces and the walls did not suffer dis-anisation. When recovery occurred the products nflammation were removed by resolution. There no occasion for a process of reorganisation, h resultant permanent changes in structure and vitable disablement of function. In broncho-umonia it was usual to find a large amount of ammatory infiltration of the substance of the nchial walls and of the alveolar walls in the centre pneumonic patches. In the centre of an early on a bronchiole was present, with catarrhal tents in its lumen and inflammatory infiltration its walls and in the peribronchial lymphatics; he severer cases the infiltrating cells were mostly morphs. This area was surrounded by a group of solidated alveoli whose walls were also infiltrated; n infiltration of the walls seemed to precede solidation of the lumen, and extended beyond the e of the consolidated patch. It was therefore lent that infection reached these alveolar septa ugh the wall of the bronchus and along the alveolar a, and not by continuity of lumen. Acute inter-al inflammation was an essential part of the ess. She believed that the existence of progressive phangitis in broncho-pneumonia accounted for firm hold which the infection gained upon the gs, and that its absence in typical lobar pneumonia ured rapid and perfect recovery. The question ther all cases in which the features of confluent ncho-pneumonia were present at the time of death sessed those features from the outset was important nnexion with the problem of differential diagnosis bar and broncho-pneumonia during life, and the iculty of placing certain cases in one or other he two groups. It seemed not unlikely that the phangitis which led to broncho-pneumonia might elop either from bronchitis or from a localised h of primary pneumonia. In certain cases of lised pneumonia of the lobar type lymphangitis ht supervene as a later development, and lead to bsequent spread of inflammation throughout the gs after the manner of broncho-pneumonia. a case would be classed as confluent broncho-monia at necropsy. Some fatal cases of primary monia which clinically were thought to be lobar, at autopsy were found to be confluent broncho-monia, might perhaps be explained in this way. was widely recognised that broncho-pneumonia more apt than lobar pneumonia to cause serious age to the lungs and to be followed by various esirable results. Among the most important of e was suppuration, bronchiectasis, and fibrosis he lungs. All these might be directly attributed fects of lymphangitis.

In answering the question why the infection in broncho-pneumonia resulted in a massive invasion of the lung, Dr. Macgregor said that the most generally recognised condition which offered a possible explanation was that in these cases there were two infections, and that the primary fever was in some sense a preparation for the subsequent inroad of the pneumonia infection. The primary predisposed to the secondary infection. On the other hand, it should be recognised that in children broncho-pneumonia was often primary and without a preparatory antecedent infection. For the interpretation of these facts various suggestions had been offered postulating separately or together—(*a*) a virus of specific quality or of special virulence, and (*b*) a condition of the patient non-infective and yet preparing the way for pneumonia. In favour of the latter suggestion was the fact that it still maintained, though in a new form, the general principle of predisposition in broncho-pneumonia. The conditions advanced on this hypothesis were such as: (1) age less than 2 years, (2) bottle feeding, (3) under-growth, (4) poverty, (5) lack of care in upbringing, and (6) rickets.

Diagnostic Criteria.

Prof. LEONARD FINDLAY (Glasgow) said that there was no difficulty in diagnosing cases of secondary broncho-pneumonia, but primary broncho-pneumonia was quite a different proposition. In the past he had tried to decide on the clinical features, but had found that cases which during life had been diagnosed as lobar pneumonia were discovered post mortem to be broncho-pneumonia. He had therefore come to regard age as the chief diagnostic criterion, because apparently lobar pneumonia was never found post mortem in children under 3 years of age, and he had come to the conclusion that all primary cases under that age were broncho-pneumonia. In children over 3 years of age primary pneumonia was almost invariably found to be, at autopsy, lobar in type. From January, 1925, to March, 1926, all the cases dying of pneumonia in his wards had been examined pathologically. The criteria used for the diagnosis of broncho-pneumonia were those given by Dr. Macgregor—namely, bronchial infection, involvement of interstitial tissues, and comparative scarcity of fibrin in the exudate. Of a total number of 65 cases examined, 35 were examples of primary pneumonia under the age of 3 years, and of these 15 were typical broncho-pneumonia; in 14 cases the clinical characteristics and the gross appearances were those of lobar pneumonia, but histological examination proved them to be broncho-pneumonia. In five cases it was difficult to decide, but they appeared to be of the mixed type, and only one case was lobar pneumonia. He had therefore come to the opinion that the prevailing type of pneumonia in infants was nearly always broncho-pneumonia. This was of great importance, because the infiltration of the interstitial tissues meant that bronchiectasis was apt to follow, since the most important factor in the causation of bronchiectasis was fibrosis. As regards the cause of this special type of inflammation he thought that the host was a more important factor than the virus.

Lieut.-Colonel W. GLEN LISTON (Edinburgh) spoke on the bacteriology of the cases referred to by Dr. McNeil. He emphasised the difficulties of bacteriological investigation in respiratory cases, and also the similarity of the naked-eye appearances of the lungs to those seen in the influenza epidemic, and therefore he made use of a special influenza agar culture medium. Culture tubes were inoculated with material taken by lung puncture post mortem, and many of these showed a pure growth of influenza bacillus. This organism was also present in large numbers in the sputum. Out of 33 post-mortem cases the influenza bacillus was isolated in 21, and of these 21 cases all but two were broncho-pneumonia. He came to the conclusion that to isolate the influenza bacillus it was necessary to use a special medium, that the bacillus was liable to attack young people, that it could cause definite lesions in the absence of

other organisms, that it opened a path for secondary infection, and that the high death-rate of broncho-pneumonia was due to the presence of the influenza bacillus, although that organism might be isolated from cases which were not serious.

Treatment.

Dr. HUGH THURSFIELD (London) wished to deal with a different aspect of the subject from previous speakers—namely, that of treatment. He had come to the conclusion that there was no material advantage in attempting to distinguish between broncho-pneumonia and lobar pneumonia in children under 4 years of age, since nearly every child dying of broncho-pneumonia showed patches like lobar pneumonia, and it was often possible to demonstrate lobar and broncho-pneumonia in the same lung. In discussing the organism responsible for pneumonia it must be remembered that practically all the complications of primary broncho-pneumonia were due to the pneumococcus, and for the purpose of treatment it was necessary to assume that pneumonia was one disease and due to one organism. With regard to the preparation of the lung for the reception of the pneumococcus, he could not accept the view that all bacilli resembling *B. influenzæ* were, in fact, the Pfeiffer organism; in many cases they were the Bordet organism. The treatment of pneumonia had for many years remained unchanged, and, therefore, he came to the conclusion that it was advisable to try specific methods. With regard to antipneumococcal serum, it was costly, had to be given intravenously every day—a matter of great difficulty in young children—and even so it only dealt with one type of pneumonia. For the last three or four years he had used vaccines in every case of severe pneumonia. The vaccine used was a stock pneumococcal vaccine sensitised by the addition of rabbit's serum. He gave 50 millions of this vaccine on the first day, 100 millions on the second day, and 250 millions on the third day. Of 126 cases of pneumonia which had come under his care, 99 did not receive a vaccine. The average age of these unvaccinated cases was 2 years 8 months, and 28 died; 58 were under 2 years, and of these 24 died. 27 cases received vaccine treatment, their average age being 2 years, and four of the cases died. The number of vaccinated cases under 2 was 13, of whom four died; and over 2 years of age, 14, all of whom recovered. Although he did not claim that these figures established any proposition they were encouraging, and there was a slight improvement in the mortality of the two groups of cases treated with vaccine methods. It must be remembered that only the severe cases were given vaccines, and his impression of the results obtained was that the condition of those that had received vaccines 24–48 hours after the injection was better than would have been expected if they had not been treated with vaccine. One case, a very severe one complicated by empyema, was treated by immunotherapy with excellent results. In conclusion he pleaded for a further trial of specific therapy.

Dr. NORMAN CARMICHAEL (Edinburgh) said that it must be admitted that there were two definite types of broncho-pneumonia, primary and secondary. The secondary type was not difficult to diagnose, but the primary cases were. These were cases of patchy nodular broncho-pneumonia which closely simulated lobar pneumonia, and it was practically impossible to differentiate between the two conditions. In vaccine treatment it was a great help to give the vaccines early, and, therefore, an early diagnosis was important. Everyone agreed that the secondary cases were due to mixed infection; the primary cases were due to the pneumococcus complicated in a few instances by Pfeiffer's bacillus. He thought also that the pneumococcus might vary in different types of lobar pneumonia—e.g., in the pneumonias of older children, particularly of the cerebral and abdominal type. Was it not possible that the pneumococcus had different types comparable with paratyphoid organisms, and that each type had its different manifestation? He thought that advance in the knowledge of pneumo would lie along bacteriological and serological lines

Dr. C. P. LAPAGE (Manchester) said that m pneumonia, especially in infants, was of the favo able type, and he thought it was necessary to ha further search before abandoning the view th croupous pneumonia was uncommon in childho Clinically it was possible to give a definite progno the dry type being a favourable type. The nature the pneumonia was determined by (*a*) predispositi the weak and debilitated child being more lia to infection; (*b*) the chance of infection; (*c*) route of the disease; and (*d*) the mixture of germs, particularly the influenza bacillus. He not use serum because the results were so g without it.

Dr. P. F. ARMAND-DELILLE (Paris) drew attent to the value of fluoroscopic examination in the diagn of lobar and broncho-pneumonia in small child In lobar pneumonia associated with a high temperat and a short course, possibly without physical sig there was to be found in one lung a pyramidal shad with its base at the pleural surface; whereas, broncho-pneumonia with irregular temperature, lungs were not quite as clear as normal, but there no definite shadow such as occurred in the lobar ty

Two Incompatible Propositions.

Dr. H. C. CAMERON (London) drew attention to dilemma in which the discussion had so far landed meeting. Two quite incompatible propositions been put forward. First, that it was not important distinguish between broncho-pneumonia and lo pneumonia, because such distinction was impossib and secondly, that the frequency of lobar pneumo was small but that the prognosis was invariably go The figures produced from Edinburgh and Glas were quite different from each other, but su it was true that lobar pneumonia did occur and t it was the same disease from old age to childho but that its virulence gradually became less. The f and most characteristic sign of lobar pneumonia what would be expected—namely, dullness.

Dr. C. W. VINING (Leeds) said that clinically th were two clear-cut types of pneumonia, in one which the prognosis was excellent. He thought t empyema was more liable to follow lobar than bronc pneumonia. The value of treatment was v difficult to assess because the cases did so well. laid importance on fresh air and continuous inhalati of oxygen, particularly in bad cases of bronc pneumonia. He also thought that the giving of la quantities of milk was a mistake; the child sho be given plenty of fluids to drink, and carbohydra but not milk.

Dr. WILKIE SCOTT (Nottingham) had used vac treatment for six years with very good results. vaccine used was Wynn's vaccine, and the course the disease in cases treated with it was shorter t those before vaccine treatment was used. He also used subcutaneous administration of oxy but did not think it had been of any help; he c used it in bad cases.

The PRESIDENT commented on the amaz mortality of pneumonia in infancy, and pointed that pneumonia was surely a general disease wit specific manifestation in the lung. To him bronc pneumonia suggested symbiosis, whereas in lo pneumonia there was a blood infection. Comment on the value of immuno-transfusion he said thought that this form of treatment had a very g future.

Dr. HELEN MACKAY (London) thought that s methods should be adopted to lessen the incide of broncho-pneumonia. If the incidence of colds w diminished then the incidence of broncho-pneum would also be diminished. In Vienna the result giving cod-liver oil to children during the wi months was that the incidence of colds was diminis

had no figures to prove this statement, but those e her impressions.

THURSDAY, JULY 21ST.

n the second day the subject of discussion was TE INTESTINAL OBSTRUCTION IN INFANCY AND CHILDHOOD.

R. ALEXANDER MACLENNAN (Glasgow) said that symptomatology was much the same as in adults. malady was a fatal one unless relieved; prognosis in children might be somewhat less ous than in those of maturer years, but as an offset his relative benignity must be placed the fact that nany of the obstructions due to congenital mal-nation relief was impossible. Children stood stinal obstruction comparatively well, for the on that the child's intestine was less prone to s than the adult's. In the main the disease was e at all ages, but obstructions due to congenital rmities were entitled to separate consideration. uodenal stenosis a complete stenosis was probably moner than one which was incomplete. A feature ll developmental obstructions was the tendency the bowel distal to the obstruction to be in a e of what might be described as embryonic ticity. Thus a functional atresia was super-osed upon the anatomical. It was to the former lition that the well-nigh hopelessness of the nosis must be ascribed. Fortunately, duodenal osis was very rare, and it was seldom diagnosed y enough for successful treatment. Indeed, it was om possible that any treatment could be curative, account of the non-distensibility of the jejunum g almost always, if not always, an accompaniment. symptoms upon which most reliance must be ed were early and persistent vomiting, with, in y cases, icterus. The operative repair of such a lition was one which would tax both the child and surgeon. Gastro-enterostomy and duodeno-jejuno-y were operations having a high mortality in nts, and the operation was practically doomed to re if it lasted more than 20 minutes. Other forms bstruction due to congenital deformities were nal and ileal atresia, colic obstructions, rectal ructions, exomphalos, Meckel's diverticulum, and ngulated hernia.

r. MacLennan said that to refer to all the various es of acute obstruction in children would be e, but reference might be made to one or two s which were frequently met with. It should be forgotten that the term "acute obstruction" h referred to symptoms was not synonymous "complete obstruction," and hence the dividing between acute and chronic obstruction was a broad Acute exacerbations superimposed themselves the chronic, and as in children the chronic state masked; clinically only the attacks of acute ruction were recognisable. Under this aspect he case came those obstructions which resulted a tuberculous infection of the mesenteric glands band-formation, or adhesions with kinking of bowel from a contracting cicatrix. These condi-s were often associated with a healed tuberculosis, they might crop up during the infective stage of astic peritonitis. How far the final stage in any onitis was due to obstruction was a point which t profitably be discussed. Symptoms indis-nishable from those produced by obstruction t be set up by other conditions without any ication of the lumen of the bowel. For instance, trangulated omentum, strangulated Richter's ia, and a mesenteric embolism would produce of symptoms almost incapable of differentiation a true obstruction. It was the general custom lassify intussusception among the obstructions, ntussusception was not more an obstruction than ndicitis was a general peritonitis. Intussusception be operated upon before it was obstructive, as an inflamed appendix before it gave rise to a ral peritonitis. The risk of leaving an appen-is until perforative peritonitis had developed was not nearly so serious as leaving an intussusception until obstructive symptoms set in. In intussusception, which was possibly one phase of the status lymphaticus, death was apt to be sudden and entirely unexpected.

The symptoms which resulted from the interruption of the intestinal flow, said Mr. MacLennan, were vomiting, visible peristalsis, and distension. Symptoms due to interference with function might be referred to under the following headings:—

(*a*) *Toxæmia.*—Considerable experimental work had been done to elucidate the results of the obstruction of the intestine which, although enlightening, had also added an element of complexity. The action of the chlorides, which were so quickly reduced in the circulation, had been proved to be of the greatest importance, but that their replacement was a desideratum was not yet established. Distension alone was serious from its pressure effects on the thoracic organs, its interference with deep respiration and with the heart. Clinical experience as well as scientific research showed emptying of the bowel to be essential.

(*b*) *Disturbance through the sympathetic* might explain some of the symptoms.

(*c*) *Paralysis of the Bowel.*—The changes in the circulation of the bowel and the reflex stimuli would account for the effusion of fluid which occurred almost invariably with any obstruction.

(*d*) *Peritonitis from Perforation.*—As the result of gangrene this serious catastrophe might set going its own series of symptoms, but as a rule death took place before that occurred.

Referring to treatment, Mr. MacLennan said that the stomach should be washed out early in the anæsthetic period, great care being exercised that none of the stomach contents found their way into the trachea. After opening the abdomen, distended bowel should be avoided and a gentle search for undistended gut instituted, the obstruction being approached from the sound side. After the obstruction had been relieved, if anything further were required the surgeon was often placed in a dilemma whether to resect, perform a lateral anastomosis, or to be content with an enterotomy. There did not seem to be any great reason why an enterotomy should not be done. He disliked making a fistula, but these fistulæ—in children at any rate—showed a great tendency to spontaneous closure if made through the omentum. The handling required in resecting was against its success, and so the quick methods of performing intestinal union were attractive. The possibility of adding infection to the already damaged abdominal contents was to be avoided at all costs. It was a decided advantage to leave as much saline in the abdomen as it would hold, and he thought the addition of 5 per cent. cane sugar, a half to one cubic centimetre of pituitary extract, and the same quantity of adrenalin was beneficial. The choice of an anæsthetic was most important. Most surgeons disliked chlororform for an intestinal obstruction, but where chloroform gained was in its greater power to produce muscular relaxation. An obstruction was more often associated with an alkalosis than with an acidosis; it was, therefore, possible that this general dislike of chloroform might not be an entirely sound doctrine. In this connexion the recent proposal to introduce pepsin and hydrochloric acid with saline into the peritoneum as a remedy in peritonitis might find support, and the almost invariable rule to give alkalis and glucose might sometimes require to be disregarded. The advice to give excess of sodium chloride might well receive a careful trial, not only because its quantity had been reduced, but also because it had a direct antagonistic action on the toxins developing in the distended bowel. The important item in the prognosis was the degree of ileus present, and this would depend to some extent on the amount of handling which had been found necessary at the operation, as well as upon the nature of the obstruction and the general robustness of the child. Where evisceration had been performed the prognosis was

bad. An early diagnosis, followed by prompt intervention, was still the thing which mattered most.

The Importance of Early Diagnosis.

Mr. BARRINGTON-WARD (London) said the factor of predominating importance in intestinal obstruction was an early accurate diagnosis. Nothing but surgery could avail and time was all-important. In most cases relief of intestinal obstruction in the early stages was a comparatively simple matter, in late cases the operation demanded the most expert and fortunate surgery. It was essential to be sure by an accurate reading of physical signs that intestinal obstruction was present. The cardinal symptoms were three in number: (1) abdominal pain, (2) vomiting, and (3) constipation. On examining the abdomen some voluntary rigidity would be noticed at first, and it might be possible to locate special tenderness in the region of the obstructed intestine. A little later distension was manifested and the abdomen became full and everywhere tender on palpation. There was never any true rigidity unless peritonitis supervened as a sequence to the obstruction. The surgeon's aim should be to diagnose and treat the case before any gross distension of the intestine became obvious. It was helpful to determine beforehand the nature of the obstruction. The age of the patient might assist, for at each period of life certain types of obstruction were more likely than others. If the obstruction occurred in the new-born it was likely to be due to congenital atresia or volvulus; if in infancy, to intussusception or an external hernia. In childhood obstruction by bands, Meckel's diverticulum, or the appendix vermiformis, and volvulus of the small intestine occurred most frequently. He proposed to confine his remarks to some of the rare accidents to children of later years, of which instances had recently come to his notice. He referred to three varieties of internal hernia. First, a congenital hole in the mesentery through which strangulation of the intestine might occur, a rare but interesting form of intestinal obstruction; secondly, diaphragmatic hernia, either traumatic in origin and due, as a rule, to motor-car injuries, or congenital, in which case the condition was usually recognised before obstruction occurred; thirdly, retroperitoneal hernia. The diagnosis of all these cases as obstruction was easy, but diagnosis of the kind of obstruction was well-nigh impossible. In volvulus of the small intestine there was nearly always a history of previous minor attacks; there was severe colicky pain followed by vomiting. The bowels might be regular or slightly constipated. The abdomen at first was not distended, but later when strangulation of the small intestine was complete, abdominal distension occurred. Evidence of profound ketosis was always present, the breath smelt of acetone, and acetone was found in the urine. The diagnosis was not easy but obstruction was often incomplete and recoverable, and the history of the previous minor attacks which corrected themselves unaided might put the observer off his guard. Volvulus had been wrongly diagnosed as abdominal tuberculosis, but more frequently as ketonæmia. In ketonæmia the patient suffered from severe vomiting, drowsiness, sometimes restlessness, constipation, and at times abdominal pain, and the bowels were inactive. The chief point in the differential diagnosis was the nature and character of the pain. In ketonæmia the pain followed the vomiting and was the result of the violent efforts of the abdominal muscles; in volvulus the pain was the first symptom, was always severe, and preceded the vomiting.

Nearly all the problems of treatment, said Mr. Ward, were concerned with late cases. He agreed with Mr. MacLennan that intussusception was not in its early stages a form of intestinal obstruction; there had been recently a tendency to revert to the old methods of injection or inflation as a curative procedure or as an adjuvant to operation. As to the management of the irreducible segment there was still a considerable difference of opinion. Immediate resection and union carried no doubt a high mortality but he thought it was preferable to measures t included temporary drainage of the intestine, wh the child rarely survived.

Obstruction in Acute Intussusception.

Miss G. M. HERZFELD (Edinburgh) based remarks on a series of cases of acquired intesti obstruction seen during the past seven and a half ye at the Royal Edinburgh Hospital for Sick Childr These numbered in all 160 cases, 116 being cases acute intussusception, 16 of obstruction due abdominal tuberculosis, 22 of irreducible and stran lated hernia, and 6 of obstruction occurring as post-operative complication in cases of acute suppu tive appendicitis. The main point of differe between acute obstruction in infancy and childh and that of adult life was that in children the abdo inal distension was often less apparent. The lad pattern was seen typically in cases of chronic obstr tion, but it should be remembered that in an emacia child peristalsis and ladder pattern might be no from time to time without definite obstruction. the treatment of all cases of obstruction in infa and childhood pre-operative care was of utmost importance. Children stood dehydrat very badly, and in every case much fluid was l and very little absorbed. Without exception, the fore, the loss of fluid should be made good, prefera by subcutaneous glucose saline. If fæcal vomit were present it was advisable that gastric lav should be carried out as a preliminary to operati The best anæsthetic was open ether, combined w local infiltration with novocaine; recently M Herzfeld had used spinal anæsthesia in cases of int susception with uniformly good results. In the p operative treatment warmth and abundance of fl were the most important points. She wished to di from the statement made by Mr. MacLennan that intussusception the obstruction was definitely seco ary and that its classification under obstruction mi lead to delay in operation. In her experie obstruction was complete in the majority of ca within the first three or four hours and a clini picture of obstruction was marked from the fir whereas the special features of intussusception, ac abdominal pain, and the passage of blood per rect might not be so easily noted. It was only in ra cases of chronic intussusception occurring in ol children that the lumen of the bowel might rem more or less patent throughout the illness. In typical intussusception of early infancy compl stoppage was the rule at a very early stage. question of recurrence of an intussusception was interest; she had met with seven instances. W regard to the treatment of irreducible cases thought that everyone was now agreed that resect and anastomosis offered the best prospect of cure.

Mr. N. M. DOTT (Edinburgh) raised two poin first, that children suffering from acute intesti obstruction tolerated operations, given a good an thesia, up to one hour's duration very well, and it v open to question whether the loss in delicate a accurate technique did not nullify the gain of a v short operation-time; secondly, that resection v possibly the best treatment in certain cases whi though reducible and viable, were extremely difficult reduce and in which the bowel was severely bruis In support of this theory he instanced a series 20 cases of acute intussusception treated during past two years. The results appeared sufficien satisfactory, and from them he was led to pl meticulous care in technique before the time-factor operation for these conditions. He believed that to absorption from the tissue of severely bruised bo might be a cause of death.

Dr. H. C. CAMERON spoke of the need for ea diagnosis when confronted with the grave sympto of intestinal obstruction in a new-born infant. duodenal obstruction the diagnosis could only made by an X ray examination in the first few d of life. There was a tendency in these cases to w

child in a shawl and adopt a fatalistic inaction, one such patient with duodenal atresia operated by Mr. Steward made a complete recovery. With ard to acute intussusception, he called attention he contrast in practice prevailing in Scandinavia, re in 80 per cent. of the cases taxis through the ominal wall without laparotomy was successful. ondary laparotomy was necessary in the remaining per cent. Mr. Jennings Marshall had recently (in nall boy suffering from extreme ketonæmia with acteristic tonelessness of the abdominal muscles, had developed after some days of illness a com- ating intussusception) reduced the intussusception moment without difficulty. Without the keto- ia this would have been impossible. In the differ- al diagnosis of intussusception from follicular colitis Henoch's purpura he thought it was a help to note smell of the blood-stained evacuation, odourless ntussusception, very foul-smelling in the others. ly, he spoke of the immense value of blood trans- n before submitting a young and ill infant to ation.

r. C. P. LAPAGE dealt with points in diagnosis. ssusception should be recognised early and if ible before blood appeared in the stools or even on inger after rectal examination. Sudden spasms of minal pain beginning in a previously healthy child, recurring at increasingly frequent intervals and increasing severity were practically diagnostic. s of acidosis on account of the previous attacks not so difficult as cases of Henoch's purpura h sometimes only had a few purpuric spots on the of the buttock. The blood was more profuse in och's purpura than in intussusception, and often atient was very sensitive to rectal examination. rew attention to the fact that purgatives might ase the symptoms very much in obstruction s, and also emphasised the value of subcutaneous e injections as an aid to withstanding the opera- In support of operation in the early days he ed a case in which an infant of a few weeks old r his care had successfully withstood a long minal operation in which his colleague, Mr. Morley, had removed a mesenteric cyst about ize of the child's own head.

. MARGARET TODD (Edinburgh) said she wished mphasise two points raised by Dr. Cameron. as to the difficulty of distinguishing between susception and acute enteritis; although it ed that this should be perfectly easy, yet her rience had been that it was not always so. It quite possible that a history of enteritis might de the onset of an intussusception; on the hand, one or two greenish motions might occur an intussusception, simulating a simple enteritis. second point she wished to emphasise was the rtance of transfusion, both as a pre-operative and operative measure.

FRIDAY, JULY 22ND.

the third day, in the absence of the President, senior Vice-President, Dr. CHARLES MCNEIL, ded over a discussion on

THERAPEUTIC MODIFICATIONS OF THE DIET IN INFANCY.

. H. C. CAMERON (London) said that debates nfant feeding seldom aroused a profitable dis- on, and as a rule served only to make clear the ifficulty of reconciling the views of those who might pposed to speak with authority. Therefore, in irst place he would ask the question, Wherein he difficulty and complexity of the subject? was it that on this subject, whose importance generally admitted, opinion remained so fluid, o little that was solid and concrete had crystallised it? Why was it that in practice one still ntered, on the one hand, a frenzied search among st of proprietary foods for one which would act the promises of all, or, on the other hand, a igid adhesion to some one system of feeding te the persistence of symptoms?

It was mercifully the nature of the child to wax and grow strong, and this upon a very great diversity of dietetic prescriptions. The human infant, however, was of so sensitive a nervous organisation that a great variety of adverse circumstances were capable of ill-effects upon its health, effects which almost always manifested themselves in gastro-intestinal and nutritional disturbance. The infant had but one function highly developed—namely, the digestion and the absorption of food. So hypertrophied a function was necessarily unstable, and, in the absence of other functions capable of manifesting symptoms of derangement, disorders of very different kinds were apt to show themselves in the guise of digestive and nutritional disturbance. Because of the action of one or other of these adverse influences many dietetic prescriptions, in themselves admirable, were apt to fall into disrepute, and to bear the blame of a disturbance of which they had not been primarily the cause. On the other hand, since those influences were more often than not transitory in their action, many dietetic recipes tried at the moment of recovery bore off the credit for a recovery which was, in fact, unconnected with their use.

Such difficulties, said Dr. Cameron, were inherent in the study of the infant and its diet, but in this country at the present time there were other difficulties to be contended with which were responsible in part for the confusion which surrounded the subject. He would refer to three only, the first being a neglect of the study of pædiatrics in universities and medical schools. At these places too little attention was paid to the scientific study of the child. The subject was regarded as a specialty, and struggled painfully for recognition among the conflicting claims of oto-rhino-laryngology, orthopædics, and even proctology. It was certain that only when pædiatrics had been elevated to the rank of a subject of the first importance, and had taken its place with medicine and midwifery as one of the trilogy of the final examination, would the profession as a whole be equipped, as it should be equipped, to deal with so all-important a branch of general practice. Operative surgery, on the other hand, which to-day occupied so large a part of the student's time and attention, belonged rightly to the specialties; its practice was a matter for post-graduate rather than undergraduate study, and its technique could only be usefully acquired by the special training of some of those who had already received a medical education. The dearth of professorial chairs in pædiatrics in this country was symptomatic of, and productive of, the widespread neglect of the subject.

The Dangers of a Standardised System.

Secondly, said Dr. Cameron, there was the detrimental effect of the advertisement of proprietary foods. Digestive derangement, however caused, was taken as indicating that the particular diet adopted was responsible for the disturbance, and a change was demanded. One food after another might be tried in an unmethodical search for something which "suits." The numerous advertisements for proprietary foods were cleverly designed to play upon the anxieties of the mother. Their effect in producing this constant demand for change was not to be set aside. These foods were to some extent the raw materials of the physician's art. Their virtue lay in the uses to which they were put, not in their composition. Many owed their origin to successful prescriptions in the past for particular types of disturbance. Thirdly, there were ill-effects from misunderstanding of propaganda for infant welfare. The appreciation of the disastrous effect of these repeated and injudicious changes of diet in the dyspeptic disturbances of infancy had led some to go to the opposite extreme, and to maintain that by a rigid adhesion to some particular formula, or scheme of feeding, success could always be obtained, at least in what was called a "well" baby. Propaganda upon matters of health was by no means free from danger to the public. For popular consumption

propaganda must be so simplified that the truth was almost squeezed out of it in the process. An outline, a mere diagram, was all that could be depicted, without light or shade, without degrees of emphasis, and without consideration of exceptions or variations. Hence the successful propagandist was seldom himself an expert. If it were possible to feed all infants, healthy or sick, in the same way, the subject could have no possible interest for medical men. Indeed, under a standardised system it was not necessary before giving advice to see the infant at all. Thus in one of the largest institutions for infant welfare it was considered possible to manage the whole business by letter, and the matron conducted a consultation department known as "better babies by post." From all over the country mothers wrote describing the symptoms from which their babies suffered, and the questions and answers were published in the lay press. The child might be over-fed or under-fed, it might have pyelitis, it might be suffering from injury to its medulla oblongata at birth—no one knew. But the advice by post, a little stereotyped perhaps, simple and legible, was always to be obtained.

In the last 20 years much progress had been made in the attempt, based upon the study of the ætiology of particular symptoms, to devise modifications which might suffice to control and correct disturbances originating from a standard diet. In other words, if the sighting shot was unsuccessful one must seek to determine the nature of the error and how it could be corrected. No doubt these therapeutic diets were for the most part to be regarded only as temporary expedients, and the ultimate aim must be to restore the child as quickly as possible to the standard diet of health. Only when it had demonstrated its power to thrive on a standard diet could complete success be claimed. Dr. Cameron exhibited a series of charts showing the value of three such dietetic modifications. (1) High caloric feeding in post-infective dystrophy. In the search for a high caloric feed, he said, he had used Keller's malt soup in children over four months old and had found it most valuable, but he had obtained better results in young atrophic infants with lactic acid milk than by any other method. He had not used Karo syrup as an addition, as recommended by Marriott, but he had combined it with concentrated Benger's food. (2) Thickened feeding in vomiting of aerophagy, nervous vomiting, and hypertrophic pyloric stenosis. In these cases he gave solid food five to ten minutes before the breast or bottle was given, the result being to call forth the peristolic action of the stomach before the ordinary food was given and thus to prevent vomiting. (3) Feeding with a high percentage of casein in fermentative diarrhœa. In these cases, which might never occur in a breast-fed infant, the child had lienteric diarrhœa with green acid stools and excoriated buttocks, but the addition of casein produced an alkaline stool with constipation. He gave this in half-teaspoonful doses before or after food two to three times a day.

DR. DINGWALL FORDYCE (Liverpool) said that the only diet which did not require modification for therapeutic purposes was breast milk. The defects of breast milk were usually those of quantity rather than quality. He did not think that chemical examination of breast milk helped very much, but bacteriological examination helped sometimes, for in three cases he had by this means discovered infection of the milk with *Bacillus coli*. In regard to artificial feeding there was not one general best dietary, nor one which might not require alteration. In most cases of digestive disorder and in the post-infective dystrophies various forms of therapeutics had been tried with good results, but he would particularly mention the results obtained by thyroid treatment, though it was not usual for the exhibition of thyroid gland to be necessary. He said that successful treatment was impossible by following a rule of thumb, and although a diathesis might or might not be recognised, yet it was most essential that the constitution of the child should be studied; he reminded his hearers that many years ago Sydenham had shown there was a tender to particular constitutions which varied in terms years, a fact which was also restated by Sam West. Success in baby feeding could only be lea by soaking in the clinical aspect either in hospi or in the home. He hoped that if Dr. Camero suggestion, with which he was in entire agreeme of the appointment of professors of pædiatrics w adopted, the department instituted would be for t medical care of children, and not only for the the peusis and care of sick children. With regard to t special points raised by Dr. Cameron, he would ag lay emphasis on the endocrine treatment in the po infective dystrophies, because very important chan were produced in the thyroid by infections. He d not consider that it was necessary to give so food in persistent vomiting; the vast majority cases did well without resorting to this form treatment.

Quantitative Modification of Diet.

DR. G. B. FLEMING (Glasgow) said that Dr. Camero remarks on feeding had been concerned with qualitati and not with quantitative modifications. He hims wished particularly to discuss quantitative modifi tions, because children who were under-fed we progressively down-hill, but those who were ov fed soon rebelled. Infants were practically starv by many methods of feeding, and this he regard as the most common cause of malnutrition. T caloric requirements per kilogramme for a norm child aged 6–9 months were as follows: basal requi ments, 55 calories; to balance loss of excre 5–6 calories; for growth, 5 calories; and for muscu exertion, 35 calories; making a total of 100. Infan atrophy was not a disease, but was due to malnutriti This could occur in one of three ways: (1) the ch did not receive enough food, a common cause atrophy; (2) the food given was not utilised, t occurred in alimentary disturbances, pyloric steno &c.; or (3) the food given was extravagantly us a condition which in infancy occurred only in feb states. The atrophic infant had no difficulty in absorption of protein and fats, and once carbohydra were absorbed they were well utilised. There was alteration in the basal metabolic rate until one-th of the body-weight was lost, and after that the r steadily fell. A simple satisfactory rule was t for every 1 per cent. a child was below 65 per cent its expected body-weight, it should be given 1 cal per kg. less than the number of calories that would required for the expected weight.

DR. LEWIS THATCHER (Edinburgh) spoke of value of lactic acid milk, which he used more more as a standard diet for premature and debilita infants, and in wasting and infective disord Most atrophic babies were under-fed, and this met of feeding enabled a high calorie food to be used; value also lay in the debuffering effect of lactic acid. began by using skimmed milk, and gradually increa the amount of fat. Another advantage of the m was that it was possible to give with it a high p centage of carbohydrate. He showed charts illust ing the results obtained by this form of dietary debility, parenteral infections, and pyloric steno Only five feeds a day were given, and if carbohydra were not well tolerated by the mouth 200–300 c. of 6 per cent. glucose solution were given in peritoneally. He did not know how long lactic a milk could be continued, but if it was prepared the way Dr. Cameron described, out-patient moth could make the milk themselves, and in some cases had continued its use for months.

DR. L. G. PARSONS (Birmingham) said that agreed with previous speakers as to the value of la acid milk. The milk he used was soured by bacte means. The organism used was *Streptococcus lacti* and he thought the results were better than w chemically prepared milk. This method did however, lend itself to private practice, althoug was widely used in Canada in that form of practe

ll were agreed as to the value of lactic acid milk, but was a curious fact that fat absorption and calcium nd nitrogen retention were not so good as when rdinary milk mixtures were used, and calcium etention would not compare with that obtained y giving HCl milk. György, of Heidleberg, had ggested that the good results obtained were due the lactate-ion being synthesised in the liver to rbohydrate and glycogen. Skimming of lactic id milk was only called for if the child had diarrhœa. s a method of feeding in pyloric stenosis its value as second only to that of breast-milk, and its acidity elped to counteract the alkalosis which developed that condition, and which might prove a fatal mplication before or after operation.

Dr. C. W. VINING agreed that under-feeding was very common cause of infantile atrophy, and eaded for simple methods in the modification of od. He used the caloric value as a test whether fficient food had been given rather than as the means framing a diet; it was necessary to have some simple ethod to indicate to mothers the quantity of the od required. He had had excellent results with id milk, and also with the addition of banana pulp milk as recommended by Dr. Thursfield.

Dr. CATHERINE CHISHOLM (Manchester) said that e ideal was to restore the child to a normal diet soon as possible. She also used cultural methods the production of lactic acid milk, but she thought great endeavour ought to be made to get a breast-lk supply. With regard to banana pulp, her perience had been that for a time this gave excellent sults, but after it had been given for a long period olerance developed. She also had great difficulty getting babies to take thick feeds.

Dr. M. F. LOWENFELD (London) said apparently ere were two schools of thought about artificial eding. One was that exemplified by Truby King, ich attempted to humanise milk, and the other s the calorie school. She also drew attention to e fact that there were extraordinary variations in e quality of breast-milk. The percentage of fat pended on the amount of fluid in the breast and the gree of pressure put on the areola. Normal pressure the beginning, with maximum pressure at the end of tation, might produce a difference of 8 per cent. of , and it was for this reason that the vigorously king infant developed dyspepsia.

Dr. HELEN MACKAY drew attention to the fact that dried milks varied very much in bulk, and that the linary domestic measure might with one form of ed milk result in the production of a milk very much re concentrated than others. She usually gave a d containing 20 calories per ounce, so as to make a all feed. If it were essential to give a more concen-ted feed she gave 30-40 calories per ounce, but child might then take more food than was necessary order to get sufficient fluid to satisfy its thirst.

Dr. C. MCNEIL said that his experience of lactic d milk had also been a good one, and that the dency in milk modifications now appeared to towards quantitative rather than qualitative dification.

ERRATUM.—The Ichthyol Company point out to hat in our notice of special drug exhibits at the recent ting of the B.M.A. in Edinburgh a confusion has been le between ichthyol and ichtholan. Ichthyol is the material of various preparations, and the error consisted placing the percentages against ichthyol instead of inst ichtholan. The note should have read: "Ichthyol ichthyol preparations including ichtholan a 10 per cent., per cent., and 50 per cent. ichthyol salve with equal s of vaseline and lanoline."

EAST HAM'S EFFORT.—In order to claim a further nt of £2000 promised by the King Edward's Hospital d, the sum of £15,000 must be raised during the next months for the East Ham Memorial Hospital, the building hich is making rapid progress. There will be accommoda-for 80 beds, and the cost, including furnishing, will be 000, which is a heavy sum for a poor locality to raise.

Reviews and Notices of Books.

A TEXT-BOOK OF MEDICINE.

By American Authors. Edited by RUSSELL L. CECIL, A.B., M.D., Assistant Professor of Clinical Medicine in Cornell University. London and Philadelphia: W. B. Saunders Company. 1927. Pp. 1500. 40*s*.

THIS large volume may claim to represent modern American views on medicine, since it is compiled by 130 contributors, of whom the majority are actively engaged in practising and teaching in the United States. It begins with an account of the common cold, and then goes on, by way of influenza, to other infectious diseases. Such a sensible start at once encourages the reader, who will not be disappointed, for this book maintains a very high level throughout its pages. If we compare it with corresponding text-books in this country, one aspect of American medicine immediately comes to light. In the section on tuberculosis, for example, almost every portion is good, but according to our ideas too little space is allotted to the physical signs of the pulmonary form of the disease. It is true that the author of this section, Dr. Lawrason Brown, attempts to disarm criticism by stating (p. 216) that "the diagnostic value of physical signs has been greatly overrated," but this does not seem to be sufficient justification for allotting one page to this means of diagnosis as compared with more than three to the examination of the sputum. It may be that the stethoscope will eventually be discarded in favour of reports from radiologist and pathologist, but this time has not arrived. Other small points call for criticism. There is no mention of urinary diastase in the section on diseases of the pancreas (p. 771). Under the heading, "new growths of lung" (p. 823), only malignant tumours are dealt with; innocent intrathoracic tumours certainly receive attention in various pages, but they would be better grouped all together. The ætiology of uræmia is incomplete, no mention being made of the vascular factor; the description of the treatment of cerebral hæmorrhage and thrombosis (p. 1305) is not very good, not sufficient emphasis being laid on the value of lumbar puncture; and, lastly, the section on birth injuries of the central nervous system is hardly fair to the section of opinion which attributes the lesions to faulty development (p. 1329).

These criticisms apart, the book is really good and certain portions are excellent, notably the section on the ætiology of rickets, by Dr. A. F. Hess (p. 553). The section on the nervous system, edited by Prof. Foster Kennedy, starts off with syphilitic affections, and is very well planned throughout. The article on pernicious anæmia is very good; to this the only English author, Dr. A. G. Maitland Jones, contributed. The index, a most important part of such a text-book, is exhaustive, covering 50 three-column pages of small print. Great care has been taken with the dove-tailing together of the various contributions into a compact whole, and the book is a worthy production of the modern American school of medicine.

DISEASES OF THE NEW-BORN.

By JAMES BURNET, D.M., F.R.C.P. Edin., Lecturer on Diseases of Children, Royal Colleges, Edinburgh. London: Humphrey Milford, Oxford University Press. 1927. Pp. 275. 6*s*.

THIS book is intended as an elementary guide to students and practitioners, which shall aid them in the recognition of such diseases and abnormalities as are met with in new-born infants and in the first month of life. Special points in the anatomy and physiology of the new-born infant are described in the first two chapters. A book on this subject must necessarily be concerned to a considerable extent with structural abnormalities and defects; these are

depicted shortly and concisely in relation to such symptoms as they may cause. An excellent chapter on cardiac defects presents the differential diagnosis of congenital heart lesions very clearly. The ætiology and treatment of pyloric stenosis are discussed somewhat fully, and stress is laid on the importance of the distinction between this condition and pylorospasm. Cerebral lesions scarcely receive the attention to which they are entitled; the value of the book would be increased if some of the recent work on spastic birth palsies were included in subsequent editions.

There is undoubtedly a need for a book of this kind; it should be useful to all who are engaged in infant welfare work, and may be specially recommended for the use of students during their midwifery course.

THE NEUROSES OF CHILDREN.

Die Neurosen des Kindesalters. By Dr. W. CIMBAL. Berlin and Vienna: Urban and Schwarzenberg. 1927. Pp. 509. M.15.

IN this book Dr. Cimbal has made an ambitious attempt to deal with all phases and degrees of nervous and mental abnormality in children. To some extent he has been justified by the result; his account is unhampered by distinctions between structure and function, the symptomatology is admirably depicted, and controversial questions, such as the relative preponderance of hereditary and environmental factors—as far as neuroses are concerned—are discussed in a balanced and open-minded manner. The influence of endocrine function on physical and mental development receives full attention, and the author's account of it contains much that is of speculative interest, though hypothesis is occasionally presented as fact. Dr. Cimbal appears to accept the James-Lange theory of the rôle of the vegetative system, which will render some of his views on the physical aspect of neuroses unacceptable to many readers in this country.

A considerable part of the book is devoted to retardation and difficulties of education. This part is certainly the least successful. The author rigidly excludes the conception of innate subnormality, and pays little attention to any element of primary amentia which may be present. The classification which results from this attitude is so lengthy as to be almost unintelligible, while little assistance is given on the important and difficult problem of the selection of cases for treatment according to prognosis and degree of educability.

DISEASES OF THE PROSTATE.

Traité des Maladies de la Prostate. By GEORGES LUYS, Ancien Interne des Hospitaux de Paris. *Prostatectomies et Tumeurs Malignes.* By VICTOR PAUCHET, Chirurgien de l'Hôpital Sainte-Michel. Paris: G. Doin et Cie. 1926. Pp. 680. Fr.90.

THIS is a large treatise on diseases of the prostate written by an author who has specialised on per-urethral methods. Good accounts of the anatomy, physiology, and pathology of the prostate are given. The bulk of the work is concerned with benign enlargement. Better accounts of the problems to be faced by the urologist dealing with the disease can be found elsewhere, but the description of forage as a method of treatment is unique. M. Luys has carried out this procedure in 110 patients with almost uniformly good results. Nearly always the operation is conducted under local anæsthesia, but an essential condition is that the urethra should have been prepared by previous full dilatation with steel bougies. The actual electro-coagulation can never be completed under three or four sittings. The method is obviously a difficult one and requires much practice with intra-urethral instruments. There seems to be only one real contra-indication—namely, great size of the adenoma. The technique of removal of the prostate by suprapubic and perineal methods is well described and illustrated by Victor Pauchet, who states that h employs the perineal method in 35 per cent. of hi operations and the ischiorectal approach in 5 pe cent. This surgeon, who also contributes the chapte on the malignant prostate, claims 50 per cent prolonged cures, without any trouble or fistula per sisting, in ten cases of cancer.

The book is well worth reading by specialists i urinary diseases.

MANUAL OF SURGICAL ANATOMY.

Third edition. By LEWIS BEESLY, F.R.C.S. Edin. Surgeon, Craiglockhart Hospital and Hospital fo Diseases of Women, Edinburgh; Examiner i Anatomy, Royal College of Surgeons, Edinburgh and T. B. JOHNSTON, M.B., Ch.B., Professor o Anatomy, University of London, Guy's Hospita Medical School. London: Humphrey Milford 1927. Pp. 563. 18*s*.

THE call for new editions and reprintings of thi book testifies to its popularity. A comparison wit the former edition reveals only a few changes, bu all that was necessary to bring the book fully up t date has been done. It is easy to read, beautifull printed and illustrated, and presents anatomy to th reader from those points of view which are of specia interest and help to the surgeon. It is perhaps a little long for the undergraduate student, but coul not be abbreviated without losing considerably in it appeal to the operating surgeon. In its present for it fulfils the needs of both. We know of no bette English treatise on surgical anatomy.

DISEASES OF THE SKIN AND SYPHILIS.

By ALBERT STRICKLER, M.D., Professor of Derma tology and Syphilology, Temple University Depart ment of Medicine. London: Stanley Phillip Philadelphia: F. A. Davis Co. 1927. With 21 illustrations. Pp. 689. 34*s*.

THIS comprehensive text-book is obviously the wor of an experienced teacher, and contains severa original features. It includes many tables to assis differential diagnosis, and every prescription for a application containing drugs for local use is sub stantiated by an explanatory adjective in italics clearly explaining the exact purpose of each ingredient This is an admirable innovation, and one which migh well be adopted by the writers of future text-book in this and other branches of medicine. The basis o classification is simple, and follows ætiological fact and considerations in so far as these are establishe The many original and striking illustrations from actua photographs, without which no dermatological text book would long survive, will make a special appeal t the practitioner and to the student with an examinatio pending. The text is concise both in thought and i expression, and yet dogmatic assertions are avoide The long chapter on syphilis and other diseases of th skin caused by spirochætes is well conceived an profusely illustrated. The sections on treatmen fulfil all the requirements of modern dermatology The book is not too bulky and the index is adequat In fact, the very high standard set by dermatologica text-books that have made their appearance i America in recent years has been fully maintained.

PHYSIOLOGY OF REPRODUCTION IN THE COW.

By JOHN HAMMOND, M.A., Institute of Anima Nutrition, Cambridge School of Agricultur Cambridge: University Press. 1927. Pp. 226. 21

THIS will be found a most valuable work of referenc for advanced students and research workers i veterinary and agricultural science. The text of th book was written in 1922, but the most importan papers which have appeared since have receive mention in the addendum. Mr. Hammond not onl gives the results of his own researches, but compar

is findings with those of many other workers. The aterial upon which the author's work is based and he methods he relied upon are set out clearly in the troduction. The chapter on the breeding season cupies three pages, that on the œstrus cycle nearly 0 pages. Forty-six pages are devoted to pregnancy, d sterility occupies 11 pages. The sections on the atomical and histological changes reveal an enormous nount of painstaking research.

The author states that his study was undertaken ith several practical objectives in view, and mentions one of these a basis of knowledge for the rational eatment of sterility. There is much need of further vestigation into the pathology of sterility in animals. a recent article on the Treatment of Sterility the Cow[1] MM. Roger and Ricaud point out that erility in the cow is still very obscure, and refer to e need for more knowledge of the physiology and thology of the genital organs. Mr. Hammond has ade no direct investigation of the causes of sterility it has certainly advanced our knowledge of the ysiology of reproduction. The pathology of repro- ction seems to be a matter which might well become e subject of special study by one or more of the terinary schools and research institutes.

The book is profusely illustrated. There are plates showing a large number of original photo- aphs and microphotographs; the value of these uld have been enhanced by more detailed scription. The bibliography contains 400 references wn to the year 1926, and provides material which y be of considerable use to advanced students of erinary and agricultural science as well as to those ose interest is in the mammalian process of roduction.

JOURNALS.

QUARTERLY JOURNAL OF MEDICINE.—The July mber contains the following articles: Intracranial morrhage in Infancy and Childhood, by W. P. H. eldon. The post-mortem records of the Hospital Sick Children, Great Ormond-street, since 1860 w 50 cases of intracranial hæmorrhage in children der 12 years of age. The bleeding was extra- ebral (meningeal) in 28, and intracerebral in of these cases; none of the hæmorrhages was natal, but five were probably produced during our or birth. The most notable conditions with ch the hæmorrhage was associated were blood ases, malignant endocarditis, trauma, meningitis, pneumonia. One case was associated with oping-cough. The article is illustrated by two es, showing the appearance of the brain in five es.—The Sedimentation Rate of Erythrocytes in ain Tropical Diseases, by H. B. Newham. Obser- ons were made in such tropical diseases as sprue, entery, kala-azar, malaria, ulcerating granuloma leprosy, and in certain non-tropical conditions. the majority of tropical diseases an increased mentation rate was found. The author considers there is evidence that all cases with an increased mentation rate have a concomitant derangement ne liver. The sedimentation rate was not found to elated to any special blood group.—The Limitation fuscular Effort and its Relation to Cardiac Failure, A. E. Clark-Kennedy and Trevor Owen. These resting observations will be dealt with later in columns.—Observations on the Serum Calcium ulmonary Tuberculosis and on Treatment by avenous Injection of Calcium, by William Brock- k. Estimation of the blood calcium in 70 cases of nonary tuberculosis did not show any very con- rable deviation from the normal, the tendency g for a fall in the acute cases and a rise when the ase was healed. Intravenous injection of calcium found to raise the blood calcium temporarily for it 48 hours, and in six cases thus treated by ated injections encouraging results were obtained. ultiple Nodular Hyperplasia of the Liver, by L. E. Hurley and G. R. Cameron. Cayley, in 1883 first described this condition, under the name of subacute atrophy of the liver. The liver becomes small and nodular, and the disease may be mistaken for portal cirrhosis or for adenoma of the liver. The cause is unknown, but it is presumably a toxin. Two fatal cases are described, with post-mortem reports and plates illustrating the histological features of the livers. The characteristic changes in the latter are the regeneration of liver cells and the formation of new bile-ducts.—The Diagnostic Value of Dextrose-tolerance Curves, by R. Hale-White and W. W. Payne. A series of sugar-tolerance curves were made on normal and diseased people. It was found that only one type of curve is diagnostic, the diabetic type, in which the fasting blood-sugar, the height of the peak and the time of return of the blood-sugar to normal are all abnormal. In other diseases a diagnosis cannot be made on the sugar-tolerance curves alone.—Studies in Blood Coagulation and Hæmophilia. I. Blood Coagulation in Hæmorrhagic Diseases, by Ronald V. Christie. Observations on the coagulation times of successive drops of blood taken from a single puncture show that they diminish with each drop, and then remain stationary. The first drop gives the coagulation time of the blood, the second or third drops indicate the effect of the tissue reaction (liberation of a thromboplastic substance), and the subsequent drops are an index to the platelet reaction. In purpura there is a marked diminution in platelets, but the coagulation time remains unaffected. Curves of the coagulation time of successive drops of blood in purpura indicate that the platelet reaction is practically absent. It is probable that in addition to the diminution of the platelets, a toxin must also be present to produce purpura, and that in jaundice this toxic factor is usually absent, the hæmorrhagic tendency being here also due to a deficient agglutination of platelets. In hæmophilia a characteristic curve was obtained showing a deficiency also of platelet reaction.—Studies in Blood Coagulation and Hæmophilia. II. Observations on Hæmic Functions in Hæmophilia, by Ronald V. Christie, H. Whitridge Davies, and C. P. Stewart. In hæmophilia the fragility of the red cells was found to be normal, and the serum calcium, plasma non-protein nitrogen, total nitrogen, chlorides, blood cholesterol, and inorganic phosphates were all present in normal amounts. The authors consider that the coagulative defect in hæmophilia is in part due to slow liberation of prothrombin from the platelets, and a slow conversion of prothrombin into thrombin. A deficient chlorine exchange between corpuscles and plasma was also found.—Studies in Blood Coagulation and Hæmophilia. III. The Treatment of Hæmophilia, by Ronald V. Christie and G. Lovell Gulland. Hæmophilia being considered to be due to a deficiency of prothrombin, the introduction of normal prothrombin should produce a temporary amelioration of the condition, which was shown to be the case with blood transfusion. This is an effective means of stopping bleeding from a tooth socket in an hæmophiliac. The most effective local coagulant was found to be cotton-wool soaked in fresh human blood.

INDIAN JOURNAL OF MEDICAL RESEARCH. Vol. XV., No. 1.—E. Muir discusses factors which influence the incidence of leprosy, and, jointly with other workers, contributes a paper on tumour-like growths induced by intraperitoneal inoculation of rat-leprosy.—J. A. Sinton contributes three papers on the anatomy of Indian species of phlebotomus.—R. N. Chopra and others a series of three papers on pharmacological topics.—Charulrata Ray writes on the biochemistry of epidemic dropsy.—J. Cunningham on a simple method of handling squirrels for laboratory purposes, and, together with M. J. Nicholas and B. N. Lahiri, on the value of etherised vaccine for the prophylactic treatment of rabies.—H. W. Acton and J. P. Bose have investigated the susceptibility of rabbits to insulin, and the former, with L. E. Napier, describes post kala-azar dermal leishmaniasis. —Asa C. Chandler contributes further papers on the

[1] Rev. Gén. de Méd. Vet., 1926, xxxv., 417.

prevalence of hookworm and other helminthic infections in India.—L. E. Napier reports upon an analysis of the results of treatment of 61 cases of kala-azar treated with the pentavalent compound of antimony —"von Heyden 693."—R. McCarrison writes upon the experimental production of stone in the bladder, and upon the experimental production of goitre.—C. A. Gill on the forecasting of malaria epidemics.

Reports and Analytical Records.

OSTELIN.

(GLAXO, 56, OSNABURGH-STREET, LONDON, N.W.1.)

Cod-liver oil is far the richest natural source of vitamin D, and is, therefore, the raw material from which such concentrates can most readily be produced. It has been known for some years that the whole of the vitamin D content of cod-liver oil resides in the unsaponifiable non-fatty fraction of the oil, and it is possible to obtain preparations which have a vitamin D activity about 2000 times as great as that of the oil itself. One such preparation, known as ostelin, which has been on the market for about two years, is available in three forms; a glycerin suspension having such concentration that 4 minims are equivalent in therapeutic value to 1 drachm of cod-liver oil; in tablet form, each tablet containing the equivalent of a drachm of the oil and 2 gr. of calcium glycerophosphate; and in combination with malt extract and orange juice, each spoonful of which contains ostelin equivalent to half a spoonful of cod-liver oil together with a like quantity of orange juice. The glycerin suspension can readily be dispensed in mixtures containing calcium salts and other medicaments. Cod-liver oil varies greatly, and it is not possible to prepare an active concentrate from an oil which is itself practically inactive. Tests are carried out in the case of ostelin by employment of the method originally proposed by Zucker, which depends upon an electrometric determination of the hydrogen-ion concentration of the fæces of standard rats. By the aid of this procedure it is possible to evaluate vitamin D content in less than one week. The number of disease conditions which are believed to be due to hypocalcæmia is very great and the phosphorus deficiency which is almost invariably associated with it is no less important. In the course of research work on the effect of ostelin on calcification in experimental rickets in rats, some analytical data were obtained as to the increase both of the calcium content and of the phosphorus of the bones.

	Controls (per cent.).	Experimental (per cent.).	Increase (per cent.).
Lime (CaO)	10·15	19·3	90·0
Phosphorus (P_2O_5) ..	7·8	14·5	86·0

All the animals received Steenbock's basal diet (2965) and the experimental animals in addition 6/10,000 gr. of pure ostelin per diem. Such laboratory results go far to justify the claims made for ostelin in the treatment of nervous disorders, wasting diseases (especially tuberculosis), eczema, and other skin diseases, and in the infantile conditions of rickets, tetany, and spasmophilia in which it acts like a specific.

KIA-ORA PRODUCTS.

(KIA-ORA, LTD., BLACKFRIARS, LONDON.)

In our issue of July 23rd we published an analysis of Kia-Ora Lemon Squash which included a small amount of glycerol. We have since had the opportunity of analysing further samples of this preparation, and we have also made analyses of the same firm's Kia-Ora Orange Squash and also their Orange Crush, analyses of which are appended. In none of these was the presence of glycerol detected, which makes it appear very probable that the amount returned in the first analysis of the Lemon Squash was adventitious, in no way representing the ordinary composition the extract, the more so as the makers assure us th this material is never used by them. Glycerol of course, perfectly harmless physiologically, so t point is not one which has any dietetic significanc

	Kia-ora Lemon Squash.	Kia-Ora Orange Squash.	Kia-O Oran Crus
Specific gravity ..	1160·24°	1171·8°	1253·
Sugar, per cent. ..	36·9	43·5	65·
Citric acid, per cent. ..	3·07	2·37	2·
Ash, per cent. ..	0·33	0·28	0·
Water and fruit pulp, per cent.	59·70	53·85	32·

New Inventions.

A NEW PNEUMATIC SPLINT PAD.

IN the treatment of fractures of the leg the box spli in general use is efficient, but we have found advantageous to use a new splint pad. These pa are hollow pneumatic rings, 1½ in. inside diamet strengthened with cord and covered with stockinet which are used in place of the "birds' nests" of wo formerly employed. The latter, often hard and irregul frequently cause skin irritation or ulceration, par cularly behind the heel. The stockinette coveri prevents chafing of the skin from sweat. The ri and the skin may with advantage be powdered extra comfort. Any device which is comfortab efficient, and pressure-relieving should be welcom The new splint pad affords these advantages a maintains the heel in a constant relation to t posterior wooden surface of the splint. The pad d not alter in height after the heel is laid upon therefore, when the fracture is satisfactorily align no change in the relation of the fragments shou occur during the early weeks of union. As with t "birds' nests," several pneumatic pads are requi for each case of fracture treated in the box spli

The pads are made for us by the North Brit Rubber Co., Ltd., Edinburgh.

RUTH E. MILLAR, F.R.C.S. Edin.
GEORGE ROBERTSON, F.R.C.S. Edin

INDOOR MERLIN CHAIRS FOR ONE-ARM PATIENTS.

IT is common knowledge that the present type Merlin indoor chair, when used by a one-armed m is most laborious, the course being always zigzag a slow, the patient being obliged to use each s alternatively with his one arm. A special Me indoor chair has been designed at my suggestion enable the patient to propel himself entirely from side; it is fitted with two hand-rails, on the work side, in such a manner that both can be gripped w one hand. One rail is fastened direct on to the wh the other rail is connected through a hollow spin to the opposite wheel. When both rails are u (being gently pressed together) the chair is propel directly ahead. Turning movements to right or are accomplished by moving either one or the ot rail, according to the direction required. This insu steady progress in a forward direction and e turning to right or left. This modification is in by several patients at the Star and Garter Ho Richmond, and has proved of very great bene It is a simple and inexpensive device which I s sure will add to the comfort of those who not o cannot walk but have lost the use of one arm.

Messrs. G. H. Dingwall, of 253, Queen's-ro Dalston, E. 8, have converted the ordinary Me indoor chair into the one here described.

EDWARD GOWLLAND, D.S.O., M.B. Lon
Lieut.-Colonel (T.D.), Commandant, Sta and Garter Home.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 3, 1927.

THE TREATMENT OF DIABETES.

THE introduction of insulin by BANTING and BEST has meant an astonishing change in the prognosis of one of the most serious diseases of everyday life. Though the death-rate from diabetes had previously been much diminished by dietetic methods there remained many severe cases, particularly in children and young adults, in which the most careful regulation secured nothing more than postponement of an inevitable catastrophe. To vast numbers of these patients insulin has brought new hope and health; case after case has been rescued from the brink of death, the emaciated have become strong, and children have grown to adult life in safety. The remedy, indeed, appears to be a true example of replacement therapy, since clinically the artificial pancreatic extract takes the place of a deficient internal secretion. In customary therapeutic practice the recognised procedure is to work out a diet which is sufficient for the patient's energy-needs and appetite, but does not raise his blood-sugar above the normal levels or cause glycosuria. Insulin is administered if these requirements cannot be met on a diet compatible with the energy-needs. Hypodermic injections are given daily, or twice daily if need be, in sufficient dosage to prevent glycosuria on a spare but adequate diet. If insulin is needed at all it is needed every day, and although in borderline cases tolerance may improve so much that the drug is no longer required, the majority of patients must continue to take it—though sometimes in diminishing amounts—for many years and possibly for the rest of their lives. This regular hypodermic administration has certain disadvantages. Skill is required, for instance, to keep the syringes and needles clean and to measure the doses accurately, and a certain amount of patience is necessary to put up with the daily pricking of the needle. These are relatively minor objections, and, indeed, it is arguable that hypodermic medication makes for greater safety, since it encourages accuracy in the dosage of a remedy which is so potent as to be a source of danger if any carelessness is allowed. Occasionally, however, a more serious disadvantage of insulin therapy presents itself, and one that is not, perhaps, fully appreciated. Each meal increases the sugar-content of the blood, and when this rise is very large an injection of insulin must be given with the meal in order to counteract it. This counter-action, to be successful, implies an absorption of insulin into the blood at a rate closely parallel to the absorption of sugar from the intestine, and unfortunately it sometimes happens in very severe cases of diabetes that the unusually large dose of insulin is absorbed more quickly than is desirable and produces temporary hypoglycæmia, this in turn being followed by hyperglycæmia with glycosuria when, some hours later, the sugar from the meal reaches the blood in full concentration. Such cases, although rare, present great difficulties, and the need has long been felt for a drug which can be administered by mouth, and so absorbed simultaneously with the food.

Attempts to secure a form of insulin which acts after oral administration having so far proved ineffective, there has been much experiment directed towards the discovery of some other compound with similar actions. On one of these, produced by Prof. E. FRANK of Breslau, we are able to publish a preliminary report. It has been known now for some time that certain guanidine compounds will produce a fall of blood-sugar when given by mouth, but the general symptoms of poisoning which accompany the phenomenon have made such compounds useless for therapeutic purposes. Experimenting with homologues of guanidine, Prof. FRANK has prepared a substance which he calls synthalin [1] and which is a diguanidyl derivative of a long chain aliphatic hydrocarbon. Its chemical formula is for the moment unrevealed publicly. It has been on trial in many German clinics for a considerable period and has also been available to a lesser extent in other countries. In view of the fact that its exact constitution is not divulged, the remedy has not been generally issued to the profession in Great Britain, but the Medical Research Council, having received confidential communication of the formula, were able some months ago to accept supplies of the substance, and with the support of Prof. FRANK invited a number of clinicians to give it a clinical test. Accounts of their investigations will be found in the Council's report published in our present issue, and it will be seen that tests have been made under carefully controlled conditions at the majority of the London hospitals, and at Bristol, Manchester, and Edinburgh. Published reports in Germany have been somewhat confusing, certain authorities apparently stating that synthalin is a satisfactory substitute for insulin, whilst others have been cautious or even sceptical in their comment. The individual statements in the British report reveal a rather similar lack of unanimity, but careful reading of the whole allows us to reach certain definite conclusions. Some of the observers, for example, have in very restricted series of cases seen no reduction in glycosuria following the administration of synthalin, but the majority have been able to establish that the new product definitely diminishes the excretion of sugar, when it is given in sufficient quantity. The effect on the blood-sugar is more doubtful, and, indeed, it is open to question whether an effectual reduction is ever brought about by the administration of synthalin in non-toxic doses. The total number of cases studied by each investigator has been so small that most of them are reluctant to draw conclusions, and for the same reason the Medical Research Council has made no attempt at this stage to correlate or summarise the findings of the different workers. Our analysis, which follows, is made with appreciation of the stress that should, or should not, be laid upon minute groups of figures. Taken as a whole it is not encouraging. It is possible to extract fairly full details of about 50 cases in which the new compound has been employed and these may be divided into two groups, the first

[1] THE LANCET, 1927, i., 35, 1168, and 1266.

consisting of 20 patients—most of them middle-aged or elderly subjects—who were treated with synthalin alone. These were all on a controlled diet, and were regarded as definitely diabetic, most of them having considerable glycosuria. In eight of them the sugar in the urine was reduced in amount; in eight others the treatment was stopped on account of toxic symptoms; in three the synthalin had no apparent effect, whilst the twentieth patient never had glycosuria at all. When it is further noted that in three of the moderately successful cases glycosuria was completely abolished by further regulation of the diet, without administration of synthalin, it becomes apparent that the results obtained with this drug have been in general disappointing. The second group comprises 32 cases in which insulin was being administered, and in which synthalin, in varying doses, was given in an endeavour to replace hypodermic by oral medication. In 11 of these it was found that the dose of insulin could be reduced when synthalin was given; in 11 others there was no effect at all; and in six the effect was very doubtful. Four cases remain; in two of them treatment with synthalin was abandoned because of toxic symptoms; in one the dose of insulin could be reduced but glycosuria was always present, whilst in one case only, among the 32, does synthalin appear to have been used successfully to replace insulin. A further word must be said concerning the toxic symptoms, which are chiefly gastro-intestinal, such as anorexia, vomiting, and diarrhœa. They occur fairly frequently but with careful regulation of dosage are seldom alarming. In one or two instances the symptoms have been suggestive of hepatitis, but in the majority they have been merely those of intestinal irritation. It must, however, be noted (as one physician emphasises in his report) that anorexia and diarrhœa will often interfere with absorption of food and thus tend to reduce glycosuria in diabetic subjects. Sodium di-hydrocholate, which has been introduced by a German firm under the name of decholin, is said to be useful for the prevention of these toxic symptoms, but unfortunately supplies of this substance were not available in this country until most of the trials under the Medical Research Council's scheme had been practically completed. At the same time there were few among the reported cases in which the symptoms were such as to call for the use of decholin.

Examination of the German literature suggests that synthalin has its greatest value in the treatment of elderly diabetics, among whom, all authorities admit, the disease is relatively mild. No remedy can take the place of insulin, really unless it has a powerful effect on the severe diabetes of children and young adults. Whereas the recorded results obtained with synthalin in this country are, on the whole, disappointing, the effects of insulin are well known to be very satisfactory, though they call for intelligence and a certain amount of self-sacrifice on the part of the patient. It would, therefore, be most unfortunate if sufferers from diabetes were generally led to believe that synthalin offers them a less difficult road to health. It cannot be too strongly stated, moreover, that the successful treatment of diabetes necessitates careful dieting, and that this necessity is not obviated by using any known therapeutic substance. British patients are usually abstemious as regards their food, and the safety of the diabetic depends upon moderation. It would be a real calamity if enthusiasm for any new remedy were to cause any relaxation of the sound dietetic rules which have been so successful in recent years in the treatment of this disease.

TELEGRAPHISTS' CRAMP.

THE report of the Industrial Fatigue Research Board [1] on telegraphists' cramp, which has just been issued, indicates the modern approach to the problem of this occupational neurosis. It may at the same time throw light on the development of neuroses in general, the mention of which used until recently to call up little more than an indefinite picture of nerve cells misbehaving in some mysterious way so as to produce symptoms conforming to no known pathology. In a report published in 1911 earlier investigators made frequent use of such phrases as "nervous instability," "temperamental factors," "highly strung disposition," and the like, with no attempt to indicate how the conditions were to be detected, or in what way they could influence the onset of cramp. In the investigations now recorded, cramp subjects and a series of non-cramp controls were put through tests involving the use of the ergograph, the pursuit-meter, the McDougall-Schuster dotting machine, and the piezograph—the last-named being a telegraph key attached to an instrument recording the pressure exercised in sending messages. The results of the tests, which were carried out by Miss MAY SMITH and Mr. ERIC FARMER, showed great variability; the cramp subjects were on the whole definitely worse than the non-cramp, yet in some cramp subjects the results were better than in some controls. This anomaly was in keeping with the confusing diversity of the symptoms; some subjects, for example, suffered from a general disability to use the arm even for gross actions such as digging, whilst in others the disability affected only the sending of particular, but not all, combinations of dots and dashes. It is difficult to imagine this diversity as being in relation to any specific localisation of deranged function, but a further investigation, carried out by Dr. MILLAIS CULPIN, into the emotional state of the subjects as likely to be reflected in modes of behaviour, offers a possible explanation of some of the anomalies.

This investigation showed that 31 of the 41 cramp cases suffered from symptoms that would lead, quite apart from the cramp, to a diagnosis of a minor mental disturbance (psychoneurosis) characterised by anxiety, obsessions, or hysteria. One subject had an organic lesion, but nine had no discoverable symptoms apart from cramp, and six of these showed no disability as measured by the tests. The common picture of a cramp case is a combination of psychoneurotic symptoms with muscular inefficiency. Of 46 non-cramp subjects 15 had psychoneurotic symptoms of varying degree. The next step was an examination of 100 young learners in the school of telegraphy to find whether any were akin to the cramp group, and the rather startling result emerged that 19 showed definite psychoneurotic tendencies, six of them in such a severe form as to admit of classification in one or other of the recognised groups of psychoneurosis. The tests, particularly the dotting test, again showed a strong tendency in the psychoneurotics to fall below the average, and 11 per cent. of the whole group approximated to the common cramp picture. Lastly, other groups of clerical workers were similarly examined, and again it was found that roughly 20 per cent. had symptoms indicative of liability to breakdown, though their symptoms could not find direct expression in their work. The investigators point out that telegraphy requires from the operator certain qualities that are more temperamental than intellectual, and they believe that no allied

[1] H.M. Stationery Office. 1s. 6d.

occupation makes such exacting demands. Specific psychoneurotic tendencies are stimulated by the inevitable conditions of the work and, although not expressly stated in the report, the conclusion seems to be justified that cramp most often depends upon a pre-existing psychoneurosis which is exacerbated by the stresses peculiar to telegraphy and then manifests itself by a symptom—if the vagaries of cramp can be called a symptom—which takes as its pivot the manipulations upon which the stresses depend. It follows that young people already showing psychoneurotic symptoms or muscular inefficiency, and especially the two in combination, should not be advised to take up telegraphy, and that attention given to the emotional state of the patient when cramp first appears might offer a means of preventing its development.

In an appendix to the report Prof. M. GREENWOOD shows that a statistical comparison between the investigators' results and the judgment of the individual learner's ability, as formed by teachers in the school, indicates that the methods of investigation—both the tests and the temperamental inquiry—explore qualities related to that ability. The pursuit of the investigation outside the sphere of telegraphy has revealed an unsuspected prevalence of psychoneurotic tendencies among the general population, even among the youthful members; this work is along novel lines, and Dr. CULPIN'S figures, though to some extent confirmed by their correlation with the objective tests, must largely depend upon personal judgment. In view of the part played by psychoneurotic disabilities in modern life, this part of the investigation is important enough to call for confirmation by independent observers.

THE DESCENT OF MAN.

WE are all too apt to overlook the simplest and most fundamental conceptions on which our thinking lives are based. We cannot be reminded of these too often nor can they be restated too frequently. Sir Arthur Keith's presidential address to the British Association at Leeds, which we print on another page of this issue, is of real and immediate moment to medicine and hygiene, though he tells a tale and reaches a conclusion which are familiar enough. Putting aside the difficult questions of the meaning and mechanism of evolution, he shows that all the evidence which has accumulated in the last 60 years has done nothing but strengthen Darwin's proposition that man is descended from the lower animals. It is a truth—or if anyone prefer the phrase, a working hypothesis—which we cannot drive too firmly into our minds, for there is still much to be done in working out its implications for human life. To find the remains of a branchial cleft in a man's neck is to have a pleasing contact with a noble conception. And as man's body has come from animal's flesh, so it is hardly possible to deny that all that governs and inspires his functions is correlated with the same source. We do not sufficiently reflect that Darwin's argument about the history of man's form is equally applicable to the history of his function; we get indeed more useful help from evolution in understanding what man does than in appreciating his anatomy. As a historical tool, therefore, the idea is indispensable and it may be expected to yield at least as much in the future as it has in the past. But a real belief in evolution implies more than this interest in what has gone by. If progressive change in the constitutions of animals has happened in the past, we have no reason to doubt that it is happening now and will go on happening in the future. What man will come to, no one can tell. But a belief in the Descent of Man is the first and necessary component of that lively faith in the possibilities of human amelioration without which no serious attempts at perfection can be long maintained.

Annotations.

"Ne quid nimis."

SURGERY AND THE DIAPHRAGM.

THE mechanical aspect of respiration, and particularly the physiology of the diaphragm, is still imperfectly understood in spite of much investigation, and even less can its activities be controlled. The importance of the subject may be judged by considering that post-operative basal pneumonia, massive collapse of the lung, and pulmonary embolism have all been attributed to inadequate or abnormal action of the diaphragm. Our ignorance is revealed by the conflicting theories as to the cause of massive collapse and the uncertain results that follow evulsion of the phrenic nerve—a procedure that theoretically should produce a massive collapse with some degree of precision. The question has mainly been studied in connexion with post-operative complications, and in America estimations of vital capacity have been used to gauge the effect on respiration of various types of operation. Using this method Dr. J. R. Head [1] found that operations on the upper abdomen reduce the vital capacity most of all—in some cases by 70 per cent. of the pre-operative figure. On the other hand, in chest cases a low pre-operative capacity is often surprisingly little affected even after an extensive resection of ribs. The probable explanation is that in such cases the diaphragm is in no way restricted and can to a great extent take over the work of the intercostal muscles when the ribs are constricted by a tight binder. Dr. Head is probably right in considering that after abdominal operations the reduction in vital capacity is mainly, if not entirely, due to deficient expansion at the bases of the lungs, and that his figures are in some degree an index to the extent of this deficiency. Further, upper abdominal operations are more liable than any other type to be followed by pulmonary complications, so there appears to be some connexion between such a liability and a large post-operative fall in vital capacity. He clearly realises the drawbacks of the method, for he states that vital capacity, "being a maximum gross reading, fails to indicate the state of quiet breathing and the relative aeration of different lung areas." But this is the very heart of the problem, for it is on precisely these two factors that the liability to pulmonary complications depends, so it is unlikely that this line of investigation will prove of much value. The part of the respiratory mechanism at fault must be the lower ribs and diaphragm. The former are constricted by a binder and cannot expand; the latter is inhibited. Opinions differ as to whether this inhibition is due to voluntary, reflex, or postural causes, and further research is needed on this point. The physiology of the diaphragm has been especially studied by Sir Charlton Briscoe; and the clinical observations and methods of diaphragmatic education described in his recent Lumleian lectures [2] are of great interest and importance in this connexion. Till a method is devised to keep the diaphragm active in the presence of an abdominal wound it seems that basal pneumonia, massive collapse, and possibly pulmonary embolism will continue to beset the practice of surgery.

[1] Boston Med. and Surg. Jour., July 21st.
[2] THE LANCET, 1927, i., 637, 749, and 857.

ERYTHEMA NODOSUM AND TUBERCULOSIS.

THE growing tendency to regard erythema nodosum as a manifestation of tuberculosis, to which we have alluded quite recently,[1] finds expression in a communication[2] by Prof. Rudolf Massini, of Basel. During the past ten years 29 cases of erythema nodosum have been observed there in the Bürgerspital, and an analysis of this material shows how frequent is the coincidence of the two diseases. Among the 29 patients there were three suffering from definite pulmonary tuberculosis (it broke in one of these cases three years after the appearance of the erythema nodosum), six suffering from pleurisy with effusion, one each from peritonitis, miliary tuberculosis and tuberculosis of the lymphatic glands, four from a subfebrile temperature suggestive of tuberculosis, one showed X ray signs of healed pulmonary tuberculosis, one suffered from tuberculosis of the bones, and one from Bazin's erythema induratum and Boeck's sarcoid. Altogether a formidable list of tuberculous manifestations. They were more common as sequels to, than as concomitants of, the erythema nodosum, and it was significant that these outbreaks of tuberculosis assumed most often the exudative progressive form. What was curious in the light of the opinion that erythema nodosum is simply a manifestation of tuberculosis was the unequal sex incidence in Prof. Massini's material; there were only three males to 26 females. Most of his patients were under 27, and the time of year most favoured was the spring. That the disease should show a certain seasonal incidence does not, in his opinion, necessarily invalidate the supposition that it is of a tuberculous character, for he points out that tuberculous meningitis also shows a preference for the spring. There was little in his material to correlate erythema nodosum with rheumatism, and only in three cases was there a definite history of typical, acute, rheumatic fever. He considers three possible relationships between the disease and tuberculosis: (1) It is an exanthematic rheumatic disease sui generis, the outbreak of which is favoured by tuberculosis, particularly by its acute forms. (2) It is a disease sui generis which favours the subsequent outbreak of tuberculosis. (3) It is itself a form of tuberculosis—an acute exudative form. While the exact nature of the relationship between erythema nodosum and tuberculosis still remains to be defined, enough is already known to guide our conduct in cases of this skin disease; the prospect of the development of a grave tuberculous disease in the near future is an indication for taking those prophylactic measures which our knowledge of tuberculosis has put into our hands.

PROTECTION IN RADIOLOGICAL WORK.

THE third revised report of the X Ray and Radium Protection Committee has recently been published, and it seems clear that its sphere of usefulness is being widened. Formed in 1921 under the chairmanship of Sir Humphry Rolleston, the committee has been enlarged and strengthened by the coöption of Dr. A. E. Barclay, Mr. C. Thurstan Holland, and Dr. Woodburn Morison, and its recommendations represent in very complete and practical form the considered opinion of British radiologists. The original suggestions have been very largely adopted, and it is interesting to note that where the same questions have been considered in other countries the proposals for protection are even more stringent than those originally put forward by the Committee. There is, of course, one outstanding difficulty in the application of such proposals to X ray work—namely, that they make the apparatus much more unwieldy; in some cases, indeed, it has been urged that with heavily protected apparatus it is impossible to do the same kind of work as can be done with appliances which are only slightly protected. But there is little doubt that the ingenuity of the designer will in time get over this difficulty, and allow complete freedom of use and action with apparatus bearing ample protection. An important addition to the report is a section on the precautions necessary in ultra-violet therapy. One of the most serious dangers here is the damaging effects which the rays have upon the eye, and insistence is laid upon the use of glasses of proved opacity to rays shorter than 3800 A.U. We have every reason for believing that the recommendations of this Committee on the subject of protection are gaining general acceptance by radiologists. The governing bodies of institutions where a large amount of X ray work is undertaken may in their turn feel assured that if the general lines of these reports are followed no harm is likely to be done either to patient or operator. The Committee, however, claims no infallibility, and expressly mentions at the end of the report that it will welcome suggestions or information which would lend to improve the schemes of protection which are outlined. Copies of the report may be had from the Hon. Secretaries of the Protection Committee at the British Institute of Radiology, 32, Welbeck-street, London, W., or from the Director of the National Physical Laboratory, Teddington, Middlesex.

[1] THE LANCET, July 30th, p. 241.
[2] Schweizerische medizinische Wochenschrift (Nr. 30).

COD-LIVER OIL AND MALT.

IN the latest annual report of the medical officer of health for Glasgow there is a section dealing with the Sale of Food and Drugs Act, and this section records an inquiry into the composition of cod-liver oil emulsions and mixtures of cod-liver oil and malt extract. In a former year a sample of malt extract and oil was found to contain only 2·82 per cent. of oil, and it was believed that this was not exceptional. In six samples of emulsion taken during 1926 the percentage of cod-liver oil varied from 23·2 to 51·05 per cent. Among the samples of extract of malt and cod-liver oil the percentage of cod-liver oil by weight varied from 2·94 to 12·51 per cent. If the malt extract is to be regarded chiefly as a vehicle, it certainly seems ludicrous that it should be necessary to consume over 30 teaspoonfuls of the mixture in order to get one teaspoonful of oil. Cod-liver oil is so much used now that the matter becomes important, and there will be general agreement with Dr. Macgregor's suggestion that the approximate percentage of oil should be declared on the label in the case of these preparations. This is only one of a number of interesting subjects dealt with in the report, a review of which appears on p. 524.

THE N.S.P.C.C.

IT commonly happens that a parent brings his child to hospital and then refuses to allow some necessary form of treatment. The refusal is sometimes comprehensible, but is nevertheless exasperating to the out-patient medical officer. The impasse appears complete, and just when it seems possible that parental obstinacy will cost the child the sight of an eye (for example), someone thinks of the National Society for the Prevention of Cruelty to Children; an urgent call for help is sent, and, as often as not, the inspector's arguments are effective. Some supporters of this Society have questioned the propriety of establishing and developing the Medical Branch, but it is becoming more and more obvious that this extension of the Society's activities is wholly consistent with its main object—"that every child in the land shall have an endurable life." The report for 1926–27 gives many indications of the useful coöperative work which the N.S.P.C.C. is doing. For instance, by means of the ambulances which the Society owns, and by arrangements made with hospital authorities, it has been found possible to overcome some of the difficulties of transporting children for treatment; as the report points out, the order "Take your child to hospital" is sometimes much easier to give than to obey. Cases are referred to the London medical branch of the Society by the London County Council, by hospitals,

by welfare centres, and by other bodies. In the year under review there were 611 new cases affecting 725 children, which gives some indication of the medical work entailed. Advice as to treatment is now frequently asked for by parents, and a large part of the inspector's work is to see that treatment is carried out. In the large majority of cases defective teeth and defective vision are the disabilities needing medical intervention, but the Society is also able to help those who are crippled in other ways, not only by securing admission to hospitals, but also by giving assistance in getting surgical appliances. Dr. L. D. Saunders, the medical officer of the Society, definitely states that opposition is becoming rarer, and if progress is maintained there will surely come a time when public opinion is so enlightened that no child's life will be rendered unendurable by a remediable physical defect.

CLINICAL PERIMETRY.

To the older generation of ophthalmologists the estimation of the field of vision appeared to be a comparatively simple procedure. It meant the definition of the field in ordinary daylight for white and for coloured objects in its periphery, the detection of any obvious enlargement of the blind spot, and of any absolute scotoma, whether central, paracentral, or peripheral. So much can be accomplished by the older methods and suffices for clinical purposes in many cases of advanced glaucoma, optic atrophy, partial cutting off of the vascular supply, and various well-defined cases of hemianopia. The conception of the visual field which modern perimetry suggests is not so simple. It differs from the older conception in that it is not merely qualitative but also quantitative —i.e., it takes into account not only the fact that there is or is not any visual acuity at all in any particular spot of the field, but also the degree of the acuity at that particular spot. It is this quantitative conception of the field with which Dr. Traquair has recently been concerned.[1] He compares it to an island of vision surrounded by a sea of blindness.

"The coast-line is somewhat ovoid in shape, and rises steeply, so that the island is surrounded by cliffs, vertical on one side, sharply sloping on the other. Above the cliffs is a sloping plateau which rises more rapidly again towards the somewhat eccentrically situated summit. This is crowned by a sharp pinnacle whose sides curve steeply upwards from a narrow base. To one side of this point is a pit (the blind spot) with sides almost vertical at first, but soon becoming perpendicular, which extends down to the level of the surrounding sea . . . If we choose to exercise our imagination still further, and picture to ourselves this island under abnormal conditions, we must think of it as distorted or partially destroyed by subsidence. Depressions of every variety may occur on its surface, of all shapes, sizes, and depths, with straight, curved, or irregular margins, with sloping or steep sides, isolated or extending to the shore or to the pit, or partly or wholly involving the central pinnacle."

We make no apology for the length of the foregoing quotation, for it illuminates a subject which is of growing importance to both the ophthalmic surgeon and the neurologist, who will look in vain for such a light on it in even the most up-to-date of the general ophthalmological text-books. Bjerrum's screen, it is true, is always mentioned in connexion with the detection of central scotomata. But the special function of this or any other form of scotometer for detecting relative defects in the field by means of using small test objects at distances greater than 33 cm. (that of the ordinary perimeter), is seldom explained, and nowhere so well as in this book. The chapters in Part I. deal with the normal field of vision, perimetric instruments, methods of examination, and the physiology of the visual field in relation to clinical perimetry. Part II. is entitled Applied Perimetry, and deals with the pathological field, and the interpretation of changes in the visual fields; also with the relation of these changes to affections of the choroid and retina, to glaucoma, to affections of the optic nerve, to the chiasma and the suprachiasmal pathway, and finally to functional conditions such as hysteria. Figures as to the exact limits of the normal field, according to different observers, are relegated to an appendix, and a bibliography gives references to over 300 papers published in European and American journals dealing with various aspects of the subject. The diagrams are an essential aid to the reader, and the print is luxurious. The work should prove invaluable alike to the ophthalmic surgeon and to the neurologist.

[1] An Introduction to Clinical Perimetry, by H. M. Traquair, M.D., F.R.C.S. Edin., Assistant Ophthalmic Surgeon, Royal Infirmary, Edinburgh. With 164 illustrations and a coloured plate. London: Henry Kimpton. 1927. Pp. 264. 30s.

DANTE AND RABELAIS.

AT the recent Edinburgh meeting of the Royal Medico-Psychological Association Dr. Hamilton Marr gave an interesting presidential address entitled Dante and Rabelais: An account of two Mediæval Physicians, with a Summary of their Philosophy. Rabelais undoubtedly was a qualified physician and practised his profession in the city of Lyons, but as Dr. Marr pointed out, it is news to most of us that Dante was a medical man. He certainly enrolled himself in 1295 or 1296, in the Guild of Physicians and Apothecaries, but that was in order to qualify for participation in the government of Florence, and it is probable that he knew no more medicine than a member of the Mercers or the Cutlers Company to-day knows of mercery or cutlery; in the roll of the Guild of Physicians and Apothecaries Dante is described as *poeta*, although as a universal scholar Dante shows a knowledge of medical matters in his works. Dante's works, especially the "Divina Commedia," are a summary of mediæval philosophy and theology, expressed in exquisite language and full of the love of nature. Just as in the Iliad fire is the dominating element, so in the "Divina Commedia" light is. Rabelais, who lived some 300 years later than Dante, was a man of a very different type; but if we eliminate his coarseness, which is in no way necessary to his philosophy, what a treasury of satire and sound good sense remains. Born in different ages, varying in their outlook on life, both Dante and Rabelais set forth three great principles: to live in this world as a preparation for the next, to love one's neighbour as one's self, and to reverence knowledge. The work of to-day is so arduous, and so much modern knowledge has to be acquired, that medical men owe a debt of gratitude to Dr. Marr for having so pleasantly set forth the advice of two old-time scholars. His address will no doubt appear in a forthcoming issue of the *Journal of Mental Science*.

OPIUM-EATING IN INDIA.

THE extent to which any particular form of drug addiction is undermining the health and efficiency of a nation is difficult to estimate, especially when the drug in question has wide medicinal value. Statistical figures of consumption, although they may show the general trend towards increase or decrease, do not reveal details and are notoriously fallible. In India, for instance, where opium has been used as a household remedy for generations, there is great difference of opinion about the extent of its abuse, and this has led Dr. R. N. Chopra and Dr. K. S. Grewal [1] to begin a detailed study of the opium habit in the Sikh community in Calcutta, amongst whom it is prevalent. The majority of these Sikhs are engaged as taxi-drivers, watchmen, or artisans. They take their opium by the mouth, as is usual in India, where opium smoking is rare. One hundred cases were examined in detail, and analysis of these showed that by far the commonest cause of opium taking (58 cases) was the association with and example of addicts. Pain and disease was the next cause (30 cases), but in only four of these was the drug first used on the advice of a physician. Of the occupations considered, taxi-drivers head the

[1] Indian Journal of Medical Research, July, 1927.

list, probably because they are comparatively well off, and have plenty of time for rest and social intercourse between fares. In 81 cases the habit was acquired below the age of 35, and, once started, it tended to continue for many years. Sixty-five of the addicts declared that opium-eating did them harm; they wished to give it up but were afraid to do so because of the symptoms which develop on withdrawal of the drug. Heredity did not appear to be an important predisposing cause. In this series of 100 addicts, 34 took from 10 to 20 gr. of opium a day, 25 per cent. took more than 20 gr. a day, and a number of the latter took over 50 gr. The larger doses were taken by the younger men. Individual study showed that the habit decreases working capacity, whilst the rapid onset of withdrawal symptoms quickly causes slavery to the drug. It is worth noting that all the addicts examined were at work. This probably means that the later and more disastrous consequences of the habit are masked, for these would be found among men who were no longer fit for employment.

THE ANOPHELINE MOSQUITO.

IT is now nearly 30 years since Ross in India first demonstrated the presence of the parasites of human malaria in the gut of "dapple-winged" mosquitoes. Since then a large amount of research has been carried out in various parts of the world regarding the part played by anophelines in the dissemination of the disease. At first it was thought that all anopheline mosquitoes were equally concerned in the transmission of malaria, but research by Stephens, Christophers, James, and others effectually demonstrated that certain species were far more efficient malaria-carriers than others. In considering the part played by different species, it has to be remembered that many factors may affect the results of observation. Amongst these may be mentioned the time of the year at which the investigation is carried out, and whether or not malaria is rife at the time. As is pointed out by Swellengrebel, Schüffner, and de Graaf, several questions must be answered in assessing the capabilities of any particular species. Does the species occur in great numbers? Is it capable of allowing the parasites of malaria to complete their development? Does it habitually feed on human blood, not only in captivity, but also in nature? Does it feed in the jungle, or does it regularly visit man in or near his dwelling-places? In an Indian medical research memoir [1] of 117 pages Major G. Covell, of the Central Malaria Research Bureau, Kasauli, has now summarised all the available information on these subjects, arranging the known species of anopheles in alphabetical order. He has considered the distribution, breeding-places, habits, relation to malaria, and experimental infections of anophelines, and in so doing has conferred a very considerable boon on his fellow-workers not only in India but throughout the tropical world. The report includes a very complete bibliography as well as an index.

TYPES OF STREPTOCOCCI IN SCARLET FEVER.

Dr. F. Griffith, of the Ministry of Health, has found that hæmolytic streptococci isolated from cases of scarlet fever fall into three main serological groups (Types 1, 2, 3), while a large heterogeneous group of organisms—roughly 50 per cent. of the whole—which seem to possess individual antigenic properties are designated Type 4. Of these groups Type 2 is the most sharply defined, and is found only in association with scarlet fever, while Types 1 and 3 show relationship with hæmolytic streptococci from non-scarlatinal sources, such as puerperal fever and sore-throat. Similar results have also been obtained by G. R. James and J. Smith, and an attempt has now been made by Dr. William Gunn [1] to correlate the type of streptococcus found in scarlet fever with the clinical findings. One hundred patients with scarlet fever were investigated, and streptococci were isolated from 93 of them. In two cases the organisms were of Type 1, in 34 cases of Type 2, and in 17 cases of Type 3, whilst in the remaining 40 they were either of Type 4 or unclassified. The proportion of types was not dependent on any age-groups. No definite conclusions could be drawn about streptococci of Type 1 as only two cases occurred in the series; Type 2 was associated with the most typical and severe forms of the disease; Type 3 with those which were less severe; and Type 4 appeared to cause only a mild attack. The complications were most severe when Type 2 organisms were found, and were less numerous and severe in Types 3 and 4. Infection by the unclassified strains clinically resembled infection by Type 3. There were four instances of scarlet fever occurring in two members of the same family, and in each case the type of streptococcus isolated from different members of the family was the same (Type 2 three times and Type 3 once). The differences in type of the scarlatinal streptococci may explain the different results obtained with the same batch of scarlatinal antiserum in cases apparently similar from a clinical standpoint, and may also explain why some cases give anomalous results to the Dick and Schultz-Charlton tests. It will be necessary to consider the risk that a patient with mild Type 4 infection may be attacked whilst in hospital by a virulent Type 2 streptococcus; it has often been observed that when hospital beds are close together the proportion of cases developing scarlatinal complications may become larger. Though the importance of recognising the various types of scarlatinal streptococci has not been fully determined, it is obvious that ætiology of scarlet fever is not quite as simple as was thought at first.

WE offer our congratulations to Mr. Priestley Smith on receiving the Lucian Howe medal of the American Ophthalmological Society. This medal has been awarded only three times previously, the recipients being Dr. Kohle, of Vienna, who first used cocaine in ophthalmic surgery; Prof. Fuchs, of Vienna; and Dr. Edward Jackson, editor of the *American Journal of Ophthalmology*. Mr. Priestley Smith was personally visited, on behalf of the Society, by Dr. W. H. Wilder, who took the opportunity of seeing the apparatus which Mr. Smith is using in his investigation of the circulation of the eye.

WE are asked to remind readers that the next session of the *Journées Médicales*, organised by a committee of the *Revue Pratique des Maladies des Pays Chauds*, will take place from Dec. 15th to 24th, 1927, in Cairo. All communications should be addressed to M. Zeitoun, Secrétaire-Général, 32, Rue Gay-Lussac, Paris (V.). The organisation has received the support of numerous influential Egyptians both as patrons and as active collaborators. The Committee have under consideration the proposition recently made by the Egyptian Government to make a session of the *Journées Médicales* coincide with the centenary of the Kasr-el-Aini Hospital in December, 1928, and we learn that there is every intention to establish a close relationship between the two movements.

[1] Metropolitan Asylums Board Annual Report, 1926–27.

[1] Memoir No. 7 (Supplementary Series to the Indian Journal of Medical Research). A critical review of the data recorded regarding the transmission of malaria by the different species of anopheles; with notes on distribution, habits, and breeding-places. By Major G. Covell, M.D., I.M.S. Published for the Indian Research Fund Association by Thacker, Spink, and Co., Calcutta.

LEGACY TO THE PASTEUR INSTITUTE.—The death has occurred at his villa at San Remo of Dr. Réné Marius Appert, of Paris, aged 65, who has bequeathed the residue of his estate to the Pasteur Institute, Paris. The value of the legacy is expected to approximate to £160,000.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXXXIX.

THE TREATMENT OF G.P.I. (PARESIS; DEMENTIA PARALYTICA).

I. THE RECENT CASE.[1]

PARESIS has for long been regarded as a hopeless condition in which treatment was of no avail. This is not now an accurate view. Life can be prolonged and remissions encouraged by prompt treatment and proper care.

Early Diagnosis.

Early cases offer the most favourable prognosis. Character changes in early middle life, or later, should provoke a minute search for the well-known physical signs of general paralysis on the part of the practitioner. If there is any doubt specimens of the blood and cerebro-spinal fluid should be obtained forthwith, so that any uncertainty can be quickly resolved. The refinement and accuracy of modern methods of diagnosis should ensure the recognition of paresis at a very early stage. Advanced cases may improve under treatment, but psychical defect nearly always remains.

Malaria Therapy.

The malarial treatment offers new hope in the treatment of paresis. It is the natural result of the almost despairing use of substances which have had some unknown stimulating effect on tissue resistance, indicated by a sharp leucocytosis and accompanied by pyrexia. Injections of such substances as nucleinic acid, sodium nucleinate, phlogetan, and lecithin have been followed by improvements. Sera have also been used, and vaccines prepared from a variety of organisms have been tried.

The treatment of paresis by inducing an attack of benign tertian malaria gives results which hitherto have never been attained. Not every case of paresis is fit for treatment by malaria, and several considerations must be weighed carefully before it is decided upon, but the method can be advised for every suitable case. An important factor is the age of the patient. The older he is the less satisfactory the result, and the greater the risk of a fatal issue. For a patient older than 45 the treatment entails increasing risks, and results may be poor. The response seems to be best in the classical elated or manic patient. The depressed paretic, the tabo-paretic, and the slowly dementing forms of the disease give less satisfactory results, though exceptions do occur. Renal disease, the presence of jaundice, cardiovascular disease, and marked anæmia increase the risk of malarial therapy and may even contra-indicate its use. A careful examination and frank discussion with the family should precede treatment when patients are suffering from conditions which will add to the dangers of the pyrexial period.

Technique.

The treatment consists in infecting the patient with benign tertian malaria, and allowing the malaria to continue unchecked until 10 to 14 rigors have occurred, when the fever is controlled by the administration of quinine. The best means of producing infection is to take 3 c.cm. of blood from a patient already under treatment, preferably during a febrile attack, and injecting it subcutaneously in the subscapular region of the recipient. After an interval, which varies from 6 to 21 days, the rigors commence and should be allowed to continue as long as the patient can safely tolerate them. Another method is the use of suitable infected mosquitoes, which are procurable with the generous assistance of the Ministry of Health. The mosquitoes are brought to the patient in glass containers which are applied to the skin, and are allowed to bite freely. In my opinion, the malaria produced by mosquito bite is less easy to control by quinine than that produced by infected blood, and relapses of the fever more frequent. During the pyrexia confusion, delirium, and hallucinations are common, and wild excitement may occur. On the whole the patients are fairly tractable. The treatment will necessarily confine the patient to bed, though he may be allowed up between the first two or three rigors. The pyrexia varies, but temperatures of 104° to 106° F. are common. The fever may be tertian, with rigors on alternate days, but is often double tertian, the paroxysms taking place daily.

Regular examinations of the urine should be made. Albumin is sure to appear, but need not cause alarm unless it becomes large in amount. Pronounced albuminuria, the appearance of jaundice or marked collapse are indications for arresting the course of the malaria, but it must be remembered that the best results follow 10 to 14 rigors. No treatment must be allowed during the rigors save sponging when the temperature rises to 105° or more.

The administration of quinine by the mouth arrests the malaria in a most effective manner. Quinine sulphate, or hydrochloride, gr. x. t.d.s. for three days, produces a rapid subsidence of the fever, and the parasites disappear from the blood. The quinine is even more effective if given intramuscularly, and when there is an urgent need to control the pyrexia it may be given intravenously. The patient will have lost weight, may be weak and anæmic, but as convalescence becomes established the mental condition should improve, and may continue to improve for three or four months after the cessation of the treatment. During this period novarsenobillon or sulfarsenol should be administered intravenously. It is well not to begin with too large a dose, and to increase the doses gradually. The malarial treatment may be carried out at home, in a nursing home, or hospital. The room of the patient is best rendered mosquito-proof by framing the windows and door with fine net. A frame may be made also for the bed, which can with advantage be protected.

The patient should be instructed to return for a course of treatment by arsenical compounds every six months during the remission of his symptoms. Lumbar puncture is useful in giving laboratory information as to the result of the treatment. The Wassermann reaction remains positive, but there should be a pronounced fall in the lymphocyte count and a diminution in the globulin content.

Other Methods.

Trial is being made of a method for inserting salvarsanised serum into close contact with the surface of the brain by performing cisternal puncture. When convalescence after the malaria is established a dose of N.A.B. is given, and after 30 minutes some ounces of blood are withdrawn, from which the serum is extracted. The following day, under a general anæsthetic, a needle is inserted into the cisterna magna, and the serum introduced, first withdrawing a similar quantity of cerebro-spinal fluid. Six injections are given at weekly intervals and very marked improvement has been recorded. Tryparsamide, a sodium salt of N-phenylglycineamide-p-arsonic acid, is also being used for the treatment of paresis. It is one of the substances which apparently passes the choroid plexus, and though there are definite risks associated with its use, it may be advised where other methods have failed. It is best given intravenously in doses of from 1 to 3 g. dissolved in 10 c.cm. of sterile distilled water. Not less than eight days should intervene between the injections, and eight injections complete the average course. Ocular disturbances are the chief risk. They may be temporary, but complete and permanent blindness has resulted in some cases from the use of tryparsamide.

[1] An article by Dr. James on the Treatment of General Paralysis: II. The ChronicCase, will appear in this series next week.

The remedy is still in the stage of trial, and patients must be carefully selected.

Social and Medico-Legal Considerations.

The paretic is a difficult patient, especially in the early stages of the disease. He is often a danger to himself, his family, his fellows, and his fortune. Judgment is so defective that delusions flourish. The practitioner should warn the friends of the probability of disordered conduct, even where no signs of it have yet appeared. In addition to the excesses and extravagances of the elated patient, the depressed paretic may commit suicide, and the suspicious type may assault the innocent victim of his suspicions. Insight is quickly lost in the early paretic, and it is hopeless to argue with him. His promise to behave is quite valueless, and in his own interests certification should not be delayed too long.

Some of the slowly dementing patients and the tabo-paretics can be managed at home. Caution must be exercised in telling the relatives and friends the nature of the disease. In any case it is inadvisable to give a diagnosis until it is firmly established by careful laboratory examinations of the blood and cerebro-spinal fluid. No delay to vene-puncture and lumbar puncture should be sanctioned by the physician. In suitable cases energetic treatment should be urged, and in view of the impressive results of modern treatment a hopeless prognosis should not be given.

Not infrequently the wife of a paretic is fully aware of the nature of the disease and its course. She fears for herself and her children. Happily, the practitioner may safely reassure her. There is no danger to be feared from close contact with the patient, and no reason even to forbid sexual intercourse. The unfortunate patient has often been passed as medically fit for marriage, and unless there were active specific signs at marriage, and a history of miscarriages, the wife and children will invariably be found to be healthy. If the wife continues to be apprehensive, a family blood Wassermann may be taken, and a negative result is the rule.

If treatment is successful, the future life of a general paralytic should be carefully regulated. The diet should be simple, he should take gentle exercise in the open air, and the bowels must be kept active. He can, and often does, carry on his work after treatment and may continue to support himself and his family.

Careful notes of the mental condition should be made from time to time, and kept. Questions of business and testamentary capacity frequently arise, when some record of the mental state is useful, and it is often lacking when most wanted.

Lastly, the laboratory reports on the blood and cerebro-spinal fluid should always be filed, and refusal of treatment, a not infrequent occurrence, should be noted in the records made concerning the patient.

G. W. B. JAMES, *M.C.*, M.D. Lond.,
Physician for Mental Diseases to St. Mary's Hospital, Paddington.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt. A. B. Grant to be Surg. Lt. Comdr.

Surg. Lts. (D.): H. A. Ginn to *Pembroke*, for R.N. Barracks; H. E. Rose and L. V. Donegan to *Victory*, for R.N. Barracks; H. V. Pell to *Ganges*; H. M. Hill to *St. Vincent*; J. M. Park to *Effingham* 11, for station duties; R. J. M. Andrews to Sandhurst; and T. Hunt to Egmont, temp. supy. (undated).

ROYAL NAVAL VOLUNTEER RESERVE.

Prob. Surg. Lt. A. W. Kendall to be Surg. Lt.

Surg. Lts.: H. Parry-Price, promoted to Surg. Lt. Comdr.; and R. B. Dodd to *Victory*, for R.N. Hospl., Haslar, for 14 days' training.

Surg. Sub-Lts.: D. R. W. Burbury, promoted to Surg. Lt.; and D. S. Buchanan to *Emperor of India*, for 14 days' training.

Surg. Lt. (D.) G. P. Monk promoted to Surg. Lt. Comdr. (D.).

Prob. Surg. Lts.: F. A. McLaughlin to *Furious*, for 14 days' training; and W. McO. Macgregor to *Renown*, for 28 days' training.

ROYAL ARMY MEDICAL CORPS.

Maj. R. G. S. Gregg retires on retd. pay and is granted the rank of Lt.-Col.

Maj. S. C. Bowle to be Lt.-Col., vice Lt.-Col. J. H. R. Winder, D.S.O., to retd. pay.

Capts. to be Majs.: O. D. Jarvis (Prov.), T. H. Sarsfield, and H. T. Findlay.

Capt. A. C. Murray to be Temp. Capt. and temporarily relinquishes the rank of Capt.

Temp. Capt. J. A. Quin relinquishes his commn. and is granted the rank of Capt.

Lt. (on prob.) E. W. Hayward, from the secd. list, is restd. to the estabt.

Temp. Maj. J. L. Dimond relinquishes his commn. on account of ill-health and retains the rank of Maj.

ARMY DENTAL CORPS.

Temp. Lt. J. J. Seaton, Dental Surg., Gen. List, to be Lt.

ARMY RESERVE OF OFFICERS.

The following, having attained the age limit of liability to recall, cease to belong to the Res. of Off.: Col. P. McKessack, late R.A.M.C., and Lt.-Cols. R. L. Argles, H. L. W. Norrington, and J. H. R. Winder.

TERRITORIAL ARMY.

Lt. J. A. Fretton to be Capt.

Lt. J. Ledingham resigns his commn.

Lt. J. O'Hara, from the 52nd (Lowland) Divl. Train, R.A.S.C., to be Lt.

Supernumerary for service with O.T.C.—Capt. V. C. Pennell, late R.A.M.C., to be Lt. for serv. with Med. Unit, Cambridge Univ. Contgt., Sen. Div., O.T.C., and relinquishes the rank of Capt.

Capts. W. Johnson and E. T. Burke to be Majs.

Capt. J. McG. Johnson resigns his commn. and to retain his rank.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Lt.-Cols. F. E. Fremantle and M. A. Cooke, having attained the age limit, are retd. and retain their rank, with permission to wear the prescribed uniform.

Capt. W. J. Wilkinson, having attained the age limit, relinquishes his commn. and retains his rank.

Hygiene Companies.—Capt. H. G. Moss resigns his commn. and retains his rank.

ROYAL AIR FORCE.

The undermentioned are granted permanent commissions in the ranks stated: Flight Lt. R. W. White and Flying Officer C. J. S. O'Malley.

The undermentioned Flying Officers are promoted to the rank of Flight Lt.: J. McM. Wilder and F. B. C. L. B. Crawford.

Flight Lt. F. T. Allen relinquishes his temporary commn. on account of ill-health.

Flying Officers: J. E. Foran to Headquarters, Egypt; and J. McCarren to Research Laboratory and Medical Officers' School of Instruction, on appointment to a Short Service Commission.

Flying Officers (D.): H. J. Eagleson to Station Headquarters, Andover; and A. P. McClare and S. McC. Craig to R.A.F. Depôt, Uxbridge, on appointment to temp. commns.

Flight Lt. D. Loughlin to School of Technical Training (Men), Manston.

ARMY MEDICAL SERVICE (R.A.M.C.): ERRATUM.—In the Students' Number of THE LANCET, published last week, the section of the Royal Army Medical Corps dealing with *Retirement and Retired Pay* and containing paragraphs numbered 1, 2, and 3 (p. 466) was inadvertently placed in the section on conditions in the Army Dental Corps. We regret the printers' error, while knowing that it will be detected immediately.

Special Articles.

SYNTHALIN IN THE TREATMENT OF DIABETES.

PRELIMINARY REPORTS TO THE MEDICAL RESEARCH COUNCIL.

THE substance known as "synthalin," which has been on trial as a substitute for insulin in Germany, and to some extent in other countries, during the past year, had its origin in the experimental investigations of Frank, Nothmann, and Wagner.[1] Starting from the fact that administration of guanidine is followed by a certain fall of blood-sugar, accompanied, indeed, by general symptoms of poisoning, these authors investigated a series of guanidine derivatives, in the hope of finding one which had an enhanced effect on the blood-sugar and a diminished general toxicity. From "agmatine" (guanidylbutylamine, obtainable by decarboxylation of arginine) they proceeded to higher homologues. The name "synthalin" was given to the compound of this series exhibiting the most favourable relation between efficiency in lowering the blood-sugar and general toxic action. The formula, which Prof. Frank communicated to the Medical Research Council before the commencement of the investigations here recorded, and which he is now about to publish, shows it to be a diguanidyl derivative of a long-chain aliphatic hydrocarbon.

Synthalin, being a pure, stable compound readily soluble in water, is absorbed without difficulty when taken by the mouth, and exhibits its characteristic activity under these conditions. If its action were truly insulin-like, and not attended by other drawbacks, this possibility of oral administration would obviously give it great advantage over insulin. The reports published from other countries are not uniform in their conclusions. The majority of the observers who have published their experience appear to have obtained results which have led them to attribute value to "synthalin" as a partial or, in mild cases of diabetes, even as a complete substitute for insulin. There are others whose experience has not been so favourable. There is some evidence, even in the records of treatment of human cases, of a toxic action on the liver, leading to the obvious warning against the employment of "synthalin" in diabetes complicated by cirrhosis. Many of the apparently favourable records are based on a disappearance of sugar from the urine rather than a lowering of the blood-sugar; and some cases have been treated as out-patients without effective control of the dietary intake. Under these conditions it was represented to the Medical Research Council that it would be desirable to have "synthalin" tested in this country on a series of cases under controlled conditions before it was offered to the medical profession generally. This suggestion had the support of Prof. Frank and of the manufacturers, who placed a suitable supply of the preparation at the Council's disposal for the purposes of such a preliminary trial. For this the Council invited the coöperation of a number of clinicians at different centres, to whom fractions of the available supply were distributed for the purposes of clinical tests.

Printed below are the separate reports which have been received from those taking part in the scheme of trials. The numbers of cases treated and the periods covered are as yet insufficient for any final conclusions to be drawn. The reports are accordingly to be regarded only as preliminary accounts. For the same reason, no attempt to correlate or summarise the findings of the different workers has been made at this stage.

One of the main difficulties encountered in the treatment of cases with "synthalin," by those responsible for its introduction, as well as other observers in different countries, has been the liability of the substance to produce anorexia, nausea, and consequent symptoms of depression. This trouble does not occur in every case, but is liable to impose a limit both on the daily dose of "synthalin" which can be administered and on the period for which its administration can be continued without intermission. Various efforts have been made to find other substances, the concurrent administration of which would mitigate this defect. According to the published accounts,[2] the most successful of these hitherto found appears to be sodium dehydrocholate, which has been introduced under the name "decholin." The stimulation of bile secretion by this bile-salt derivative is believed to have an antagonistic effect on the toxic action of "synthalin" on the liver, and the practical results of the combined treatment are said to be favourable. Unfortunately, supplies of "decholin" were not available in this country until most of the trials made under the Council's scheme had been practically completed. At the same time, it may be noted that there were few among the reported cases in which symptoms were produced by the "synthalin" treatment calling for the use of "decholin" as well.

While these clinical trials have been in progress experimental observations on the action of "synthalin" on normal animals have been in progress in the Biochemical Department of the National Institute for Medical Research. The full results of these will later be published elsewhere. In the present connexion it may be noted that the experiments have shown that in the normal animal "synthalin" has to be administered in doses producing a definitely toxic action on the liver, in order to produce a decided fall of the blood-sugar. Such results taken by themselves give the impression that its effect is mainly due to a depression of the new formation of sugar in that organ. Other experiments, however, carried out on the eviscerated, spinal preparation have produced evidence that "synthalin" also accelerates the disappearance from the circulation of glucose already present as such, though the glucose thus disappearing is not, as in the case of the insulin action, laid down in the tissues as glycogen, and large, toxic doses of "synthalin" are needed for demonstration of the effect.

Broadly speaking, the two sides of the insulin action—the depression of new formation of glucose in the liver and the accelerated metabolism of glucose already present in the circulation—appear to be represented in the action of "synthalin." The question of its practical use will obviously be decided by the degree to which its beneficial action is complicated by its toxic effects. It is clear that an ideal insulin substitute has not yet been obtained. "Synthalin," however, may be regarded, perhaps, as a partial success, giving at least a hope of further progress in the same direction.

REPORT FROM ST. BARTHOLOMEW'S HOSPITAL, LONDON, BY GEORGE GRAHAM, M.D., F.R.C.P., AND G. C. LINDER, M.D., M.R.C.P.

Synthalin has been used according to the method recommended by Frank, with some minor alterations, in order to test its action in comparison with insulin. Nine patients have been treated, seven of whom had been having insulin for some time. No patient has been treated for more than eight weeks, and these remarks cannot be regarded as anything but preliminary observations.

Cases not Receiving Insulin Treatment.

CASE 1.—A boy of 14 years, with mild diabetes for one year. On 80 g. carbohydrate he passed 20 g. sugar in the

[1] Frank, E., Nothmann, M., and Wagner, A.: Klin. Woch., 1926, No. 45; Deutsch. Med. Woch., 1926, No. 49 and 50.

[2] Adler, A.: Klin. Woch., No. 11, March 12th, 1927, pp. 493, 494.

urine with a high blood-sugar. After four courses of synthalin the glycosuria was reduced to a trace, and the blood-sugar was substantially lower although still above normal at certain times of the day. He had active tuberculosis.

CASE 2.—A woman of 57, with hypertension and obesity. The blood-sugar curve after 50 g. glucose was frankly of diabetic type before synthalin was given; after synthalin the curve, although still abnormal, was much less so.

Cases Receiving Insulin Treatment.

CASE 3.—A woman of 32, taking 35+30 units of insulin to metabolise 30 g. carbohydrate. After four courses of synthalin, a single dose of 20 units of insulin was sufficient to maintain the blood-sugar in the same range without glycosuria. After six courses the patient developed lassitude and nausea, and asked to return to insulin treatment.

CASE 4.—A man of 53, taking 25+25 units of insulin to metabolise 35 g. carbohydrate with normal blood-sugar. The patient has now taken 6 courses of synthalin with 10+10 units of insulin; the carbohydrate has been increased by 20 g., and he remains without glycosuria and with a normal blood-sugar.

CASE 5.—A severe case in a girl of 19, requiring 50+45+5 units of insulin to metabolise 20 g. carbohydrate and keep the blood-sugar normal. After three courses of synthalin the insulin was reduced to 30+25+5 units without harm, but no injection could be omitted.

CASE 6.—A boy of 15, taking 14+12+4 units of insulin to metabolise 32 g. carbohydrate with a normal blood-sugar. After three courses of synthalin, the insulin was successfully reduced to 5+5+5 units. It was not possible to omit an injection, for on 12+12 units of insulin sugar reappeared in the urine.

CASE 7.—A man of 30, who was having a diet containing 120 g. carbohydrate. With 20+20 units of insulin he passed 8 g. sugar. After three courses of synthalin, the glycosuria was rather lower and the blood-sugar was within the same range of limit.

CASE 8.—A boy of 16, who was having a diet containing 45 g. carbohydrate. The blood-sugar was kept within normal limits with 15+15 units of insulin. Synthalin, 25 mg. daily, was then given for three days at a time, with one day's rest. The insulin was gradually reduced to nothing, and the blood-sugar remained within normal limits. After six weeks he had an attack of nausea and vomiting, and synthalin has been stopped temporarily.

CASE 9.—A girl of 6, who was having a diet containing 30 g. carbohydrate. The blood-sugar could not be controlled with 10+10 units of insulin, on account of alternating hyper- and hypo-glycæmia. When synthalin was given instead of insulin, nausea developed together with a severe ketosis. This condition was treated with insulin and subsided rapidly.

Summary of Preliminary Work.—1. Synthalin has an effect on the blood-sugar which is not immediate like that of insulin, but is delayed and more prolonged. 2. Its action does not seem so consistent as that of insulin. 3. In one mild case 30 units of insulin were completely replaced by 25 mg. of synthalin, and the blood-sugar remained normal (Case 8). 4. In three cases a reduction of insulin dosage of 30–45 units was effected by 50 mg. of synthalin, and the blood-sugar remained within normal limits (Cases 3, 4, and 5). 5. In one case 50 mg. of synthalin had about the same effect on the urine sugar as 40 units of insulin, but the blood-sugar was not kept within normal limits (Case 7). 6. In two cases very little effect was apparent, and in a third the condition of the patient resembled that of incipient diabetic coma (Cases 1, 6, and 9). 7. Mild toxic symptoms were observed in two cases, but no decholin was available (Cases 3 and 8).

REPORT FROM GUY'S HOSPITAL, LONDON, BY E. P. POULTON, D.M., F.R.C.P.

The effect of synthalin was tried on two severe cases of diabetes, as there were no elderly cases with a mild diabetes in the ward at the time.

CASE 1.—A boy, aged 10 years, with diabetes for ten months. Two daily injections of insulin were given for a period of three weeks, 26 and 22 units. Then 10 mg. of synthalin were given twice a day for a week, and 20 mg. twice a day for 12 days. The patient began to get mild hypoglycæmic reactions, and the insulin had to be reduced to two doses of 16 and 12 units. The urine was tested at three-hourly intervals during the day, and was usually free from sugar. After omitting the synthalin, sugar appeared rather more frequently. Blood-sugar tests were carried out at 2 P.M. on different days; there was a good deal of variation in the results, but the average of four determinations before synthalin was 0·156 per cent., and during treatment with synthalin 0·135 per cent.—i.e., it was actually a little lower in spite of the insulin being reduced.

CASE 2.—A man aged 30. Diabetes had begun five years ago, and at the time he was treated successfully for coma. He was then treated by dietetic measures. He relapsed into coma associated with sepsis, and was admitted on March 25th, 1927. He required 40 units of insulin twice a day. The urine was nearly always sugar-free when tested at three-hourly intervals during the day. The blood-sugar at 2 P.M. was on an average 0·12 per cent. Synthalin was given in doses of 30 mg. twice a day, and the insulin reduced to 40 units once a day. There was usually some sugar in the 6 A.M. specimen of urine, and occasionally at other times with this treatment. The blood-sugar at 2 P.M. was 0·09 per cent. and 0·16 per cent. on two occasions. After ten days synthalin was omitted, but the insulin kept to 40 units once a day. The sugar came back in the urine in large quantities in every three-hourly specimen obtained during the daytime, and he began to complain of thirst.

Conclusions.—It is very difficult to draw conclusions as regards the effect of synthalin on the blood-sugar by making single determinations at the same time each day. What is really required is a series of determinations carried out through the 24 hours on several days; but so far as our determinations go, they suggest that the blood-sugar was no higher during synthalin treatment in spite of the insulin being lower. The therapeutic action of synthalin in diabetes is also shown by the urine tests and by the hypoglycæmic reactions of Case 1. At the same time synthalin can only be used in severe cases with the object of diminishing the number of injections. It would not be possible to do away with insulin altogether in these cases. These patients did not complain of indigestion with synthalin, but Case 2 complained of a dry throat.

REPORT FROM KING'S COLLEGE HOSPITAL, LONDON, BY R. D. LAWRENCE, M.D., M.R.C.P.

The effect of synthalin has been studied in six fully controlled diabetics by its effect on glycosuria, glycæmia, ketosis, nitrogen excretion, and the clinical condition. Synthalin was given for periods of from five days to four weeks in the fullest doses, 35 to 50 mg. per day, but without the usual pauses recommended by Frank, to obtain the fullest possible action of the drug. Little digestive intolerance has been observed, and no jaundice or urobilinuria. No decholin has been used to push the dosage still higher, because these cases were studied in February and March before the introduction of decholin.

Non-insulin Cases.

CASE 1.—A heavy glycosuria of 30 g. was produced by overfeeding in a mildly diabetic girl. This was reduced to 5 g. after four days of 40 mg. of synthalin and the blood-sugar from 0·25 to 0·2 per cent. but no further. She was subsequently easily controlled by diet alone.

CASE 2.—An excretion of 30 g. of sugar was reduced to 15 g. in a moderately severe diabetic after 45 mg. of synthalin for a week without any obvious change in the blood-sugar (0·22 per cent.) or ketosis. Subsequently 20 units of insulin completely controlled his condition.

Insulin Cases.

An attempt was made to replace insulin by synthalin in three moderately severe diabetics who required from 20 to 35 units respectively, a substitution which the German reports made appear possible. Synthalin alone in the fullest doses failed to control the diabetes, and a heavy glycosuria and ketosis and a marked hyperglycæmia and loss of weight followed in all three cases. On resuming insulin and synthalin together, synthalin seemed to spare 10 units in one case and perhaps 5 units in another. In one case, after stopping the insulin, alternating periods of ten days with and without synthalin were without any appreciable effect on the glycosuria, glycæmia, or ketosis during these periods. In a severe insulin-resistant case (220 units a day) 40 mg. a day of synthalin for three weeks failed to produce any effect in abolishing the need for insulin or sparing it.

Summary.—Among these six cases, it is only in the mild one, which could easily be controlled by diet alone, that synthalin had an important effect in reducing the glycosuria, without, however, making

the blood-sugars normal. In the cases who required even moderate doses of insulin, synthalin has not been able to replace insulin entirely nor to reduce it to one dose a day, which would be of great practical importance. Its continued use in any of the above cases had therefore no obvious advantage. It would seem from these results that synthalin can aid insulin action, if insulin either endogenous or exogenous is available, but cannot replace it. Thus it acted most in the mild case, less in the moderate cases in which it slightly increased the action of exogenous insulin, and failed in severe cases having little insulin.

It would appear probable, from *a priori* reasons and from the reports that synthalin can cause jaundice, that it acts by inhibiting the production of new sugar by the liver, an inhibition of catabolism, probably by a mildly toxic action on the liver cells. It seems unlikely that it can replace the anabolic function of insulin which is so essential to the diabetic. Its action in reducing the appetite may also be of importance in the results observed with uncontrolled diabetics. In my experience synthalin has proved of *no practical use* in the treatment of diabetes.

REPORT FROM THE LONDON HOSPITAL BY O. LEYTON, D.Sc., M.D., F.R.C.P.

I hold the view that in a certain proportion of cases suffering from diabetes mellitus the correct administration of insulin leads to regeneration of the pancreas; therefore I did not feel justified in trying the effect of synthalin upon all cases of that disease, but only when there was some definite contra-indication against insulin.

Amongst the dozen cases submitted to synthalin, (*a*) two were over 70 years old; (*b*) two had unstable metabolism, developing severe hypoglycæmic symptoms without any controllable cause—perhaps the effect of emotion upon absorption; (*c*) four cases had become tired of the frequent hypodermic injections; (*d*) three expressed a desire not to begin insulin, due to their having the incorrect impression that if insulin is begun it must be continued throughout life; (*e*) in one case huge doses of insulin had to be given, and I thought it wise to see whether synthalin could replace some of the insulin and thereby diminish the risk of severe hypoglycæmic attacks.

(*a*) In the two aged cases 25 mg. synthalin twice daily undoubtedly assisted the metabolism, shown by the acetone in the urine disappearing and the patients gaining weight whilst the glycosuria was reduced. The sugar in the blood was diminished but not reduced to normal. One of these cases, a female, developed symptoms which resembled those of acute cholecystitis, which subsided upon my ceasing to give synthalin. If this had been the only case developing such symptoms I should not have attached any importance to it because apparently the patient had had similar attacks in the past. The other case, a man, aged 75, was able to take 25 mg. synthalin daily but developed nausea when taking more. The 25 mg. assisted him to burn sugar but did not render him free from glycosuria.

(*b*) One of these two patients was a man whose work was intermittent and anxious. When at work, even if he succeeded in obtaining food, anxiety might prevent its absorption. Although intelligent and wisely refraining from insulin and food, nevertheless circumstances occasionally were too adverse and he had attacks. He gradually replaced 12 units of insulin twice a day by 25 mg. synthalin, whilst not making any alteration in the diet. The synthalin did not keep his blood-sugar at so low a level as the insulin, but seemed to raise his renal threshold for dextrose. Although the sugar in his blood was often in the region of 0·23 per cent. he did not pass a recognisable amount of sugar in his urine. He maintained his weight. The other, a boy of 14, who had been receiving 10 units of insulin twice daily for many months and had an occasional hypoglycæmic attack. Due to an infection, his condition became worse, and to meet this synthalin was given in addition to insulin with beneficial results.

(*c*) Of the four cases in this group, three were unable to take synthalin because they developed nausea and actual vomiting and this in spite of taking chloretone or dehydrocholic acid. One succeeded in continuing the drug when given two tablets of dehydrocholic acid with each dose of synthalin.

(*d*) A woman, aged 45, on diet C. 62, P. 72, F. 115, with sugar in blood 0·24 per cent. on synthalin 25 mg. twice a day gradually fell to 0·20 per cent. whilst the glycosuria was controlled. Chloretone failed to control the nausea and vomiting; 15 units of insulin twice daily led to hypoglycæmic symptoms developing; 10 units twice daily sufficed to prevent hyperglycæmia. A man aged 56. One year's history, treated by restricted diet. Placed upon a diet C. 67, P. 90, F. 130. Sugar in blood 0·25 per cent. After ten days on synthalin acetone disappeared from the urine, the blood-sugar was 0·24 per cent., and glycosuria persisted. Diet was reduced to C. 55, P. 90, F. 130. After a week traces of sugar were still passed along with a minute trace of acetone. These effects were produced whilst the patient was having teeth treated for pyorrhœa alveolaris. A woman aged 28. Six months' history. Diet C. 29, P. 84, F. 108. Sugar in blood, 0·20 per cent. After six days sugar in blood fell to 0·117 per cent. and glycosuria ceased. Diet then increased to C. 40, P. 84, F. 108. Several teeth extracted during period of treatment.

(*e*) A man, aged 33, with very severe progressive diabetes mellitus, needing more than 40 units of insulin twice daily to prevent hyperglycæmia and acetonuria. He was able to keep fairly well upon 30 units of insulin twice daily with two doses of 25 mg. synthalin. It is true that he developed nausea and a pain suggesting hepatitis. Synthalin was suspended for a time; for the last month or more he has been able to tolerate synthalin without the assistance of dehydrocholic acid or chloretone.

Conclusions based upon a dozen cases would be valueless, therefore I do not draw any.

REPORT FROM THE MIDDLESEX HOSPITAL, LONDON, BY T. IZOD BENNETT, M.D., F.R.C.P.

In the six weeks during which observations have been possible, only one case has been available from which detailed conclusions could be drawn. Six cases in all were observed, and toxic effects in the nature of gastro-intestinal irritation, nausea, vomiting, or diarrhœa were observed in three. These were not serious in degree, but sufficient to terminate the observations. Decholin was not available for use with the synthalin.

The case in which all controls were satisfactory was that of a child, aged 12, who has been under my care for five years. On a diet of C. 50, P. 70, and F. 100, with 15 units insulin, he is sugar-free with normal blood-sugar. Weight, 24 kilos. The insulin having been reduced to 5 units, the blood-sugar rose to about 0·20 per cent. and 20–30 g. sugar were excreted daily. Synthalin in doses of 15, 20, and 30 mg. daily was now given, increasing to the last dose over a period of 21 days. There were no toxic symptoms, and no effect was observed, either in the nature of a diminution in the urinary sugar or in the level of the blood-sugar. The synthalin was then stopped and the extra 10 units of insulin restored. In two days the patient was once more sugar-free with normal blood-sugar. It appears certain that in this carefully controlled case the synthalin was entirely without effect.

In another case it became evident that a reduction in sugar-excretion which had appeared to be due to synthalin was in reality due solely to the "ladder diet." This patient, after becoming nearly sugar-free on a diet of 500 calories, became quite sugar-free on a diet of 750 calories with 50 mg. of synthalin, but increasing tolerance had begun before the drug was given, and after stopping the synthalin the patient remained sugar-free and the diet was raised gradually to 1000 calories without glycosuria returning.

Conclusions.—1. No case has been observed in which a reduction in sugar excretion or of hyperglycæmia could be ascribed to the administration of synthalin. 2. In a most carefully controlled case of severe diabetes, synthalin in full doses appeared to have no effect. A small dose of insulin in this same case produced effect with almost mathematical exactitude. 3. Controls such as absolutely fixed diet over a sufficient preliminary period are essential if correct conclusions are to be drawn as to the possible effects of drugs of this type. 4. The absence of all gastro-intestinal symptoms is a further most important control condition, it being evident that even a slight degree of anorexia or gastro-intestinal disturbance may produce a diminution of sugar excretion. 5. The number of cases at present observed is far too small to permit of any final conclusion being drawn.

A portion of the synthalin received was handed to my colleague, Prof. E. C. Dodds, who tested it on rabbits, both orally and by subcutaneous injection. Oral administration proved ineffective. Given subcutaneously in doses of approximately 5 mg. per kilo body-weight, no effect was observed. In doses

exceeding this death occurred, the blood-sugar, after a preliminary hyperglycæmia, falling to below 0·05 per cent. Intravenous administration of glucose failed to save the animals. Histological examination of the organs is in progress.

REPORT FROM ST. THOMAS'S HOSPITAL, LONDON, BY PROF. HUGH MACLEAN, D.Sc., M.D., M.R.C.P.

Synthalin was tried on eight diabetic patients. The doses were from 10–20 mg. twice daily, with an occasional day on which no synthalin was given. In five of these patients the drug set up fairly marked clinical symptoms within four or five days so that its use had to be discontinued. This toxic action seemed to affect chiefly the gastro-intestinal tract, and the chief symptoms complained of were nausea, anorexia, vomiting, and diarrhœa. Occasionally slight albuminuria was noticed, but this was always in very small amount. Even when no definite symptoms were present several of these patients complained that they did not feel well; they said they were "out of sorts" but could not give a more definite description of their feelings.

In three patients, however, the use of the drug gave rise to no toxic symptoms of any consequence. The plan adopted in these cases was to stabilise the patient on some definite treatment, then to give synthalin; and after synthalin was administered for some time it was withdrawn for a period. The following are the results obtained in these three patients:—

CASE 1.—Aged about 57. This patient had a history of thirst, wasting, and weakness for nine months. On admission to hospital the urine contained large amounts of sugar and diacetic acid. The patient was given a suitable diet and watched for some time. For four days before synthalin was given careful records of the blood-sugar, volume of urine, sugar excretion per day, and acetone secretion per day were kept. The results obtained were as follows:—

Results for Four Days Before Synthalin.

Blood-sugar averaged	0·28 per cent.
Volume of urine	2300 c.cm.
Average sugar in urine per day	75 g.
,, ketones per day	9·6 g.

The patient was then given 10 mg. of synthalin twice a day and records were kept as above. Since synthalin does not appear to act immediately, the results for the first three days on synthalin treatment are given separately. After this the results for the six following days are recorded:—

Average Results for Three Days with Synthalin.

Blood-sugar averaged	0·28 per cent.
Volume of urine per day	1300 c.cm.
Total sugar per day	56 g.
,, ketones ,,	7·5 g.

Average Results for following Six Days with Synthalin.

Blood-sugar averaged	0·24 per cent.
Volume of urine per day	1200 c.cm.
Total sugar per day	40 g.
,, ketones ,,	3 g.

After this synthalin was withdrawn. The following are the results obtained for the next four days:—

Average Results for Four Days following Withdrawal of Synthalin.

Blood-sugar averaged	0·3 per cent.
Volume of urine per day	1600 c.cm.
Total sugar per day	70 g.
,, ketones ,,	5·5 g.

In this patient synthalin had apparently a marked effect on the excretion of ketone bodies. There was also some effect on the amount of sugar excreted. With the exception of some slight feelings of nausea on one or two occasions this patient had no toxic symptoms from the drug.

CASE 2.—This was a severe case of diabetes in a female aged 21. When admitted to hospital the patient was taking 75 units of insulin per day. In this patient blood-sugars were systematically estimated at 10 A.M., 1 P.M., and 4 P.M. each day. For a fortnight she was kept on standard diet with 75 units of insulin per day. After this synthalin was added and given for ten days. The insulin was then reduced to 40 units per day, the same amount of synthalin as before being given. After this the synthalin was cut off. In a few days more synthalin was again added. On the whole the variations in blood-sugar were not very different whether synthalin was given or not, so it is unnecessary to give the figures. The general results obtained in this patient are as follows.

Standard Diet and 75 Units Insulin for 14 Days.

Average amount of urine per day	1900 c.cm.
,, sugar passed per day	48 g.
,, ketones ,, ,,	4 g.

Synthalin, 20 mg., Twice Daily, with 75 Units Insulin, for Ten Days.

Average urine per day	1400 c.cm.
,, sugar ,,	23 g.
,, ketones ,,	0·8 g.

Insulin, 20 Units, Twice Daily, with Synthalin as Before.

Average urine per day	800 c.cm.
,, sugar ,,	10 g.
,, ketones ,,	0·58 g.

Synthalin, Cut Off; Insulin, 20 Units, Twice Daily as Before.

Average urine per day	1700 c.cm.
,, sugar ,,	56 g.
,, ketones ,,	2·7 g.

Synthalin, 20 mg., Twice Daily, with Insulin, 20 Units, Twice Daily as Before.

Average urine per day	800 c.cm.
,, sugar ,,	40 g.
,, ketones ,,	0·3 g.

In the case of this patient, although there was no appreciable variation in the blood-sugar, it is obvious that the total excretion of sugar was reduced when synthalin was begin given. The most marked effect of the drug, however, appeared to be on the acidosis. The reduction in the amount of ketone bodies which followed the administration of synthalin is very marked.

CASE 3.—This patient was a female, aged 40, with a history of diabetes of 18 months' duration. In this patient synthalin did not seem to have any marked effect but the drug was not continued for more than five days owing to albuminuria resulting. It is interesting, however, that this patient did not experience any gastro-intestinal symptoms.

Conclusions.—From the point of view of practical therapy, synthalin in its present form is of little or no value because of its pronounced toxicity when given in doses sufficiently large to have an effect on the metabolism. There can be little doubt that synthalin has a very definite though perhaps limited effect in certain cases of diabetes. It appears to reduce to some extent the excretion of sugar and seems to have a very pronounced effect in reducing ketone bodies in the urine and in limiting acidosis. Whether these results are obtainable only in certain patients, or whether all patients react in the same way, was impossible to decide owing to the toxic properties of the drug.

REPORT FROM THE ROYAL INFIRMARY, BRISTOL, BY MAURICE E. J. PACKER, B.Sc., M.B.

Six cases of diabetes mellitus were chosen to represent all degrees of severity of the disease, the patients' ages ranging from 16 to 69. The drug was given by mouth in varying doses (up to 100 mg. in one day), and both with and without insulin. Each case was treated for about three months and frequent blood-sugar curves were taken after the standard meal.

Case.	Age.	Sex.	Weight.	Severity.	Diet in grammes.		
					C.	P.	F.
1	50	F.	12·13	Medium.	93	76	165
2	16	F.	9·8	Severe.	69	57	129
3	59	F.	8·3	Medium.	69	57	129
4	48	F.	12·7	Medium.	93	76	165
5	69	M.	11·2	Slight.	124	101	218
6	54	M.	10·8	Medium.	124	101	218

CASE 1.—With 15 units of insulin b.d. the maximum blood-sugar was 0·278 per cent. with no glycosuria. Synthalin, given in addition, failed to lower the blood-sugar. Glycosuria was caused by trying to replace 15 units of insulin by 75 mg. of the drug every day for three weeks.

CASE 2.—The maximum blood-sugar was 0·260 per cent. with 56 units of insulin twice daily. The addition of 50 mg. of synthalin on alternate days raised her blood-sugar.

CASE 3.—The maximum blood-sugar was 0·289 per cent. with intermittent glycosuria; 50 mg. of synthalin every day did not take the place of 10 units of insulin, for the blood-sugar and glycosuria were increased.

CASE 4.—This patient had not been treated with insulin. She could not tolerate more than 20 mg. of synthalin on alternate days and this dose caused the blood-sugar to fall from 0·279 to 0·250 per cent. A daily glycosuria of about 50 g. decreased to about 20 g. Pruritus vulvæ was not markedly improved.

CASE 5.—His blood-sugar curve (fasting B.S. — 0·185 per cent.) was slightly improved by 20 mg. of synthalin on alternate days. He could not tolerate more. Glycosuria was rarely found before or during treatment. Neuritis was not improved.

CASE 6.—The blood-sugar curve (max. B.S. — 0·286 per cent.) was only slightly improved by 50 mg. of synthalin each day. Diabetic cataracts continued to become worse.

Conclusions.—This short series indicated that: 1. The preparation does not cause a pronounced and sustained fall in the blood-sugar level or glycosuria. 2. Neuritis and pruritus vulvæ of diabetic origin are not improved by the drug. A case of diabetic cataracts continued to become worse. 3. Toxic effects are easily produced, but in time patients are able to stand progressively larger doses. 4. Synthalin (given by mouth) was not a satisfactory substitute for insulin in the cases treated.

REPORT FROM THE ROYAL INFIRMARY, MANCHESTER; THE ROYAL HOSPITAL, SALFORD; AND THE ANCOATS HOSPITAL, MANCHESTER, BY G. J. LANGLEY, M.D., M.R.C.P., AND GARFIELD THOMAS, M.SC.

(The cases at the Manchester Royal Infirmary were made available by the kind coöperation of Dr. F. Craven Moore, Dr. E. Bosdin Leech, and Dr. A. Ramsbottom. Those at the Salford Royal Hospital and Ancoats Hospital were under the care of Dr. Langley.)

Nine cases have been treated. Two children, ages 13 and 15 years; four young adults, ages 24, 28, 34, and 37 years; and three in late middle age—i.e., two aged 51, and one 67 years.

Progress has been estimated by determination of the blood-sugar, the examination of the urine, maintenance of the body-weight, and general condition of the patient.

In the cases treated at Ancoats and Salford Hospitals the blood-sugar was estimated two-hourly except at night. The general plan was to build up the patient's diet with an adequate dose of insulin and then when balance had been established to change over to synthalin by Frank's method, the diet remaining unchanged. Periodical remission of the synthalin, as recommended by Frank, was carried out. Two of the cases have been under synthalin treatment for 11 and 12 weeks respectively, and the other seven for nearly four weeks.

In the two children and two of the young adults synthalin failed to control the disease—i.e., it was not possible to replace the insulin with the equivalent or more than equivalent dose of synthalin (50 mg. daily was not exceeded) and maintain the blood-sugar at a satisfactory level. In one of these cases, a moderately severe type, the toxic effects of the drug when 50 mg. daily were being given, necessitated a return to insulin. Decholin was not available.

In one of the young adults, a female, aged 28, 30 units of insulin daily have not been replaced satisfactorily by 50 mg. of synthalin because the blood-sugar has shown a tendency to rise. In this case judgment must be reserved until a later date.

One of the young adults, a butcher, aged 37, admitted in coma, was brought into balance with 70 units of insulin daily. This patient has had synthalin for 12 weeks, 50 mg. being given to replace 40 units of insulin. His balance has been maintained, and his condition is satisfactory.

Of the three older patients, one brought into balance with 40 units of insulin per diem has had this satisfactorily replaced by 50 mg. synthalin. The blood-sugar has kept within normal limits, the patient's weight is maintained, he has had no toxic symptoms, and is back at work. Another of the older patients requiring 24 units of insulin daily had this replaced by a single dose daily of 25 mg. of synthalin. After apparent successful replacement lasting nine days, acute toxic effects were produced and the drug was stopped. In this case, after cessation of the vomiting and diarrhœa, the blood-sugar has remained normal for a period of ten days *without either synthalin or insulin.*

The third case in this group was a patient, aged 67, who had been operated on for diabetic gangrene, the diabetes being controlled by 40 units of insulin. This was successfully replaced by 50 mg. of synthalin. After eight days half this dose was found to be equally successful, and for a further 12 days neither drug has been used. The blood-sugar has remained normal and weight has been maintained.

Summary.—It will thus be seen that in four out of the nine cases the synthalin has been unsuccessful. In one, the result is as yet doubtful but promising. In two others, the synthalin has replaced insulin apparently satisfactorily, but in one of these insulin is still required though in a smaller dose than previously. Finally, in two more cases, control appeared to have been established with synthalin, but on ceasing to administer either synthalin or insulin the blood-sugar remained normal. This is in accordance with the general experience that the diabetic in later middle life after insulin treatment for from three to four weeks will remain sugar-free and comfortable for a considerable period without continued insulin. On the other hand, it is known that the effects of guanidin last for a long time, and this may be true of synthalin. In two of the cases toxic effects were produced, and the treatment had to be abandoned on this account.

REPORT FROM THE ROYAL INFIRMARY, EDINBURGH, BY PROF. D. MURRAY LYON, D.SC., M.D., AND W. ROBSON, PH.D., M.SC.

Papers already published regarding the value of synthalin in diabetes are unconvincing because sufficient care does not appear to have been given to control of the diet during the tests. In many of the cases illustrated the composition of the diet has been varied from day to day, allowing insufficient time for thorough stabilisation. The full effect of an alteration of the food intake does not become at once apparent, and a steady balance may not be reached for a week after a change has been made. In submitting a new drug to clinical test it is essential that the effect of other variables be avoided, and in the case of an insulin-like body this necessitates a rigid control of the diet during the period. For these reasons, cases of considerable standing who had been under observation for a long time were chosen. The patients were already stabilised and sugar-free on a standard diet of definite caloric value either with or without the aid of insulin. By raising the diet or by reducing the insulin a small quantity of sugar was then allowed to appear in the daily sample of urine, and the patient was stabilised afresh during a week at this new level. Synthalin was then administered over periods of from five to seven days, and this was followed by similar periods without and with synthalin. Under these circumstances there appeared to be a slight reduction in the quantity of sugar excreted under synthalin, but traces of glycosuria were never finally got rid of. In none of the five cases so examined has the effect been striking. On the other hand, three of the patients have been a good deal upset by the drug. Headaches were frequent and severe, and there has been considerable nausea, retching, and vomiting. At times the observations have been rendered doubtful by the patient losing food through anorexia and vomiting, or through failure to digest it completely. Those symptoms are so disturbing that they will restrict the free use of the drug, should it prove to possess the other actions claimed for it.

One other case has been treated with synthalin from the beginning. He was put on a diet of 2000 calories containing 68 g. of carbohydrate, and this has been kept constant throughout the investigation. During five days without synthalin the daily loss of sugar fell from 400 to 300 g. Synthalin was then given for eight days, and the daily output gradually fell to about 30 g. A period of seven days without synthalin followed and the sugar loss further diminished to 9–20 g. a day. Observations are being continued. How much of this improvement is to be attributed to continued use of the rather low diet, and how much to the drug, is not yet apparent. Synthalin merits further investigation, but our experience of it up to date is not sufficient to allow of any opinion as to its real value.

THE CAMPAIGN AGAINST MALARIA.

THE Second General Report on the Principles and Methods of Antimalarial Measures in Europe[1] has just been published by the Malaria Commission of the League of Nations, and is dedicated to Dr. N. V. Lothian, Dr. S. T. Darling, and Mlle. A. Besson, who died whilst travelling on duty on Lebanon. The collective study-tours undertaken by the Commission have for the first time enabled malariologists of different countries and of different schools of thought to study local problems on the spot. Individual views have become modified and the conclusions reached in most cases represent an average opinion which probably approaches the truth. Their significance is obvious, and they do not apply to Europe alone.

Only very rarely, it is pointed out, can there be any question of converting a malarial into a non-malarial place; an alteration of this kind can be effected only by a complete change in the character of a site such as has occurred in the course of centuries in London and Rome. In the Panama Canal zone, for instance, the locality has not been essentially altered, and malaria is merely being held in check; were protective measures to cease, the disease would again become devastating. Save in very exceptional cases, therefore, it is unwise to aim at more than a significant reduction in malaria—that is to say, a reduction which will make it of little or no importance as a cause of sickness and death. As regards the means by which this may be accomplished, the startling statement is made that there are localities where hardly anything has retarded the effective control of malaria so much as the belief that, since mosquitoes carry the infection, their elimination should be the object of chief concern and expenditure. In England, the Netherlands, and Denmark malaria was robbed of its importance at a time when its epidemiology was unknown, and when there was no reduction of mosquitoes, and the Commission has seen the same thing happening in Europe to-day.

Of the measures which may be employed for the lessening of malaria, there is none which can be described as the method of unquestioned choice, and the one selected must depend on local conditions. Yet such measures do fall into two great categories, designated direct and indirect, these terms being used in rather special senses. The direct measures of the Commission are those which kill malaria parasites, either in man by the treatment of infected persons, or in anopheles by the destruction of infected mosquitoes in houses. In the opinion of the Commission, these direct measures are primary and always indispensable; the others are adjuvant. The old aim—to break the chain somewhere—is replaced by a new one, to kill the parasites themselves. Nor is it held advisable that too many different measures of control should be put into operation at the same time. It is better to carry out one or two thoroughly, for experience has shown that for every measure there is a "minimum effective degree of perfection," and if it is not carried out with a certain degree of thoroughness then it is of no use at all.

For the destruction of plasmodia in the human body it is stated that quinine, quinidine, and kinetum are of almost equal efficiency in dosage of 1 g. daily, while cinchonine falls into the same category if the dosage is increased to 1·5 g. Quinidine is the strongest cardiac depressant. Kinetum consists almost entirely of residual alkaloidal bases—the composition of the tested samples being: quinine 15, cinchonidine 35, cinchonine 25, quinidine 5, and quinoidine 20 per cent.—and it must, therefore, be concluded that a standard preparation of the principal alkaloids, purified only so far as to exclude the more toxic constituents, is as efficacious as quinine. This conclusion replaces the cinchona febrifuge of India and Java in its old eminence, always provided that it can be standardised; and it is also important because employment of these total alkaloids, in place of pure quinine, would greatly enlarge the amount of specific antimalarial alkaloid at present available for world use, and—apart from commercial rings—should correspondingly cheapen the cost of treating the disease. The demand for, and so the cost of, cinchona alkaloids will be further reduced by the Commission's pronouncement that "prophylactic quinine" in the usual preventive doses does not prevent malaria, and merely does something to keep in abeyance an infection which has become established. In these ways more and cheaper alkaloid should become available for use where its action is most greatly to be desired. All this implies the primary importance of diagnosis, and the Commission indicates administrative methods which would make for its accuracy.

The procedure advised for directly attacking plasmodia in anopheles starts from the fact that, in Europe at any rate, the majority of infected mosquitoes are found inside houses. Many a housewife offers to *Anopheles maculipennis* the amenities of cobwebs, dirt, dark corners, and shady cupboards, whereas the gorged, sluggish, and probably infective mosquito ought really to be regarded with as much disfavour as the bed-bug and the louse. It is difficult to exaggerate the importance of their destruction, and at least they ought to be put to all possible discomfort by house-cleaning and whitewash. It may also be noted that the Commission is satisfied of the usefulness of the suggestion—associated particularly with the name of Roubaud—that a damp, dark, still animal house situated between a breeding-ground and the home will divert the insects to a harmless vicarious meal.

With regard to indirect antimalarial measures the Commission states that in all its journeys only two regions have been found where efforts of this kind on a large scale have been definitely successful—namely, in the Karst Mountains of Dalmatia, and in parts of Palestine. In both of these areas water is extremely scarce, strictly localised, and readily controlled. The report returns to the subject of Italian bonification, which signifies all work carried out with the object of making regions which are periodically or permanently marshy, more suitable for agriculture and more healthy. The means adopted are not essentially antilarval, and indeed they often increase, by the use of drains, the total area available for anopheline breeding. Their object is primarily social—that is to say, they change a poor, sparse, scattered, often semi-nomadic, population into one which is settled, well-to-do, and aggregated into villages, and has schools, doctors, water-supply, proper sewage disposal, and houses of an enforced hygienic standard. With a change of this kind malaria is lessened.

Finally, the Commission emphasises the great need for continued research. It is remarked that the conveyance of malaria in the natural way by mosquitoes in this country, in cases of general paralysis, has enabled English workers to make certain valuable and unique observations. The unnatural method of infection practised elsewhere—namely, injection of the blood of a malarial subject—has not permitted similar studies abroad. These observations, together with an account of work in the Netherlands, Roumania, and Italy are embodied in the report, and the whole forms one of the most stimulating publications on malaria that has appeared in recent years.

[1] Obtainable in Great Britain from Constable and Co., Ltd., Orange-street, London, W.C. 2.

KING'S COLLEGE HOSPITAL. — King's College Hospital will require a larger income this year than its total of £102,554 of last year if it is to meet the cost of additional beds and the pension scheme. The necessity of completing the building, owing to the demands of the ever-increasing population of South London, is strongly emphasised by the Committee. The in-patients treated last year numbered 6055 and the number of new out-patients 34,492.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Medical Registration.

THE first step in the formation of the Irish Free State Medical Registration Council was taken last week, when the election of two direct representatives of the medical profession was completed. Three candidates were nominated—namely, Mr. P. E. Hayden, F.R.C.S.I., Prof. M. R. J. Hayes, F.R.C.S.I., and Prof. R. J. Rowlette, F.R.C.P.I. There are on the Register some 2900 practitioners entitled to vote. Of these, only about half returned voting papers. The count showed 1141 votes cast for Mr. Hayes, 936 for Dr. Rowlette, and 552 for Mr. Hayden. Mr. Hayes and Dr. Rowlette were, therefore, declared elected. Invitations have been issued by the Minister to the several educational bodies who are entitled to nominate representatives to notify him of the names of their nominees. When these have been received the Executive Council will complete the Council by two further appointments.

Election of Mr. T. Hennessy to the Dail.

Mr. T. Hennessy, F.R.C.S.I., has again been elected a member of the Dail. He had been one of the deputies for South Dublin City from early in 1925 up to the General Election, when, acting on medical advice, he refused to go forward again as a candidate. A vacancy having since occurred in his old constituency, he consented, at considerable personal inconvenience, to contest the seat. His many friends in the medical profession rejoice that he was successful, winning for the Government Party by a larger majority than was expected. It is somewhat hard on him that the Dail should have been dissolved immediately after his election, as he will have to face another election in a fortnight's time. The medical profession, regardless of party, recognise the importance of having in the Dail a medical man of the authority and influence of Mr. Hennessy, and his return at the general election is to be hoped for.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

Vital Statistics.

THE birth registration area last year comprised 28 States, and within this area 1,597,903 births were reported, giving a general birth-rate of 20·1 per 1000, as compared with 21·1 during 1925. Florida has the highest birth-rate (26·4), perhaps as a result of the recent boom, and is the only State where there has been an increase. Florida also shows the highest death-rate (15·3). The general death-rate for the registration area has increased from 11·7 per 1000 in 1925 to 12·1 in 1926, and infant mortality has increased from 71·5 to 72·8 per 1000 births for the same years. Arizona, which is becoming popular as a health resort, has the highest infant mortality (119·5) of any of the 28 States reporting. Homicide is more than ten times as common as in England, and even when the coloured population is excluded the rate remains seven times that for England and Wales. For 28 cities with an aggregate population of nearly 23,000,000 the murder death-rate was 9·9 per 100,000, as against 11 per 100,000 in 1925. Compared with the previous year there has been a decrease in Chicago from 18·8 to 16·7, in New York from 6·4 to 5·7, and in Philadelphia from 9·7 to 8·6. Dr. F. L. Hoffman, commenting in the *Spectator* on the 1926 homicide statistics, remarks that capital punishment is apparently no deterrent, for there is, generally speaking, a higher murder death-rate in the States which enforce it.

Industrial Morbidity in Ohio.

The Industrial Commission of Ohio is authorised to set aside from the State insurance fund a sum of money not to exceed 1 per cent. of the annual contributions made by employers for the investigation and prevention of industrial accidents and diseases. With this fund the commission has set up a division of safety and hygiene including statistical, medical, and research branches, and the first comprehensive study of the industrial morbidity of the State has now appeared.[1] Between July 1st, 1921, when the compensation law became effective, and Jan. 1st of the present year, 4443 claims have been filed. These claims have been classified according to the nature of the disease or accident, the industry in which it occurred, and the duration of disability. From the last point of view lead-poisoning is found to be the most serious cause of economic loss, 907 claims showing a total loss of 277,112 days. This figure includes fatalities (37) and permanent disabilities, the time-loss for which is calculated according to the scale of weights recommended by the International Association of Accident Boards and Commissions. Skin diseases, on the other hand, were responsible for the largest number (3005) of claims, but for a total loss of only 86,253 days. Most of the cases in this group (2890) were due to dermatitis from various irritants, including gases, dusts, and oils. The duration of disability from this cause was less than one week in 57 per cent. of the claims. A number of claims were filed which cannot be compensated under the present law, including 75 for tuberculosis, with 14 deaths. Although this list is obviously incomplete it has also been classified and the results included in the tables. The total loss of time by all compensable claims was 760,069 days, and the total medical expense for treatment of these cases was $98,866. Unfortunately the number of insured persons is not given either by industries or in total.

During the past year 3692 claims have been made for injuries to minors (under age 18), of whom 3139 were males. As many as 233 claims were for children under 16 years of age. Classification of the claims shows that a number of minors must be illegally employed. For example, no child under the age of 18 years may oil or clean machinery while in motion, or operate abrasive wheels in the manufacture of metal articles, yet a number of accidents occurred to minors while engaged in these occupations. The causes responsible for the greatest frequency of accidents are given as handling objects (839 accidents), machinery (831), stepping upon or striking against objects (485). The causes responsible for greatest severity of accidents are motor vehicles (21,034 days), elevators (20,781 days), and machinery (19,880 days). The accidents by machinery are further classified according to the type of machine. Once again the value of these tables is diminished by our ignorance of the numbers exposed to risk.

Immunisation against Diphtheria.

The Board of Health of the State of Virginia has devised a plan for encouraging the general use of toxin-antitoxin for the prevention of diphtheria. Attached to every birth certificate is a piece of paper bearing the legend: "When the baby is six months old have your doctor give toxin-antitoxin to prevent diphtheria.—United States Public Health Service." The Federal authorities recommend that other States should follow this example.

A Campaign against Venereal Disease.

In the *Chicago Evening American* for August 8th appears a full-page advertisement of a public health institute, organised for public service as a corporation not for profit under the laws of the State of Illinois. The names of the trustees of the institute appearing at the foot of the advertisement are those of prominent business men in the city. "It's a crime," the headline reads, "to expose innocent women and children to the ravages of 'social' diseases." Advice is given on the contagiousness of these diseases, an illustrated booklet is offered free to applicants, and

[1] Special Bulletin No. 1. The Industrial Commission of Ohio, 1927.

the addresses of three treatment centres are given with the assurance that the treatment will be given privately by competent physicians at prices which all can afford. This is an interesting, because rare, example of a local public health organisation founded and sponsored by the laity from a sense of public responsibility.

A Notable Propagandist.

The return of Dr. W. W. Peter from China recalls his remarkable health campaign at Foochow in 1920. During a single week 110,000 people were reached through 247 meetings, and the result was practically to eradicate cholera from a city where it had long been endemic, and where in 1919 there had been no less than 18,000 cases. Dr. Peter has now joined the staff of the American Public Health Association as associate secretary.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the statistics for 1926 of three Scottish towns :—

Name of district and mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Diarrhœa under 2 years.	Infant mortality.	Maternal mort. from childbirth.
Glasgow .. .. (1,101,622)	22·1	14·2	1·17	1·26	2·8	1·4	6·5	104	6·3
Aberdeen .. .. (158,723)	21·5	13·3	1·15	1·33	1·67	—	4·5	96	5·9
Paisley .. .. (86,103)	22·4	14·2	1·03	1·68	2·7	1·5	9·8	114	4·7

The population of Glasgow, as shown, is a local estimate. The Registrar-General's estimate is lower, and makes the birth-rate 23·5 and the death-rate 15·1. The neonatal rates in the three towns are : Glasgow, 37 ; Aberdeen, 35 ; and Paisley, 47. A table in the Aberdeen report gives the death-rates from all causes in the six chief Scottish towns, when corrected for age and sex distribution, as : Glasgow, 17·0 ; Edinburgh, 13·7 ; Dundee, 14·8 ; Aberdeen, 13·4 ; Paisley, 15·6 ; and Greenock, 15·0. It is to be hoped that after the 1931 census the discrepancy between central and local estimates of population will disappear. An over-estimate of the population is perhaps more dangerous than an under-estimate, as it may lull the local health authority to a sense of false security.

Glasgow.

Dr. A. S. M. Macgregor's report is a volume of 375 pages, which includes many interesting special reports by members of his staff. By the Glasgow Boundaries Act of 1925 10,328 acres were added to the city. The population of the added area was only two persons per acre, whereas that of the 19,183 acres of the old city was 57. The average density of the extended city is therefore 38 persons per acre. The number of empty houses in the old city in 1926 was 408, and in the extended city 421 ; in 1913 the number of empty houses in the old city was 18,710. A total of 6796 linings for new houses were granted by the Dean of Guild Court, a much higher number than in any year since the war, although, says Dr. Macgregor, "the rapidity with which the shortage is being overtaken is not yet sufficiently great." The worst feature of the housing situation is the intense overcrowding of the small houses. The effect of some of the slum clearance schemes is illustrated by plans and photographs. A scheme came into operation on July 1st, 1926, for the admission of candidates from Glasgow and south-west Scotland to the Royal Blind Asylum for training. During the last half of the year 49 applicants were dealt with, of whom 14 were found not to be blind according to the standard adopted. The causes of blindness in the 35 candidates accepted were as follows : Congenital cataract, 2 ; senile cataract, 3 ; albinism, 1 ; aniridia, 1 ; syphilis, 11 ; gonorrhœa, 4 ; measles, 2 ; pneumonia, 1 ; glaucoma, 1 ; injury, 2 ; and cause unknown, 7.

A booklet has been prepared during the year describing the maternity and child welfare scheme with all its ramifications. A chart showing the infant mortality-rate since 1890 shows the large oscillations which occur from year to year, "due to the effect which infectious and respiratory diseases have on infant life." During 1890 to 1900 the oscillations were round about 150 ; now they are round about 100. Dr. Macgregor states that a study of the last epidemic shows that under the close association permitted by tenement life in closely congested areas, measles, with its complication broncho-pneumonia, attacks the children at an age when they are relatively powerless to resist it. Another chart in the report shows the regularity with which an outburst of measles occurs every alternate year. An effort is being made to secure better coöperation with the education authority by the establishment of joint clinics. An illustration is given of the new welfare centre opened at West Govan during the year. There are now 14 centres at which consultations are held, and the child welfare staff includes 10 lady doctors and 29 nurses. An investigation has revealed the fact that between 4 and 5 per cent. of the children attending the welfare centres suffer from some degree of otorrhœa. It was noted that in 48 per cent. the condition began in the first year of life (in 22 per cent. before the end of the sixth month) ; in 27 per cent. during the second year ; and in the remaining 25 per cent. between the third and fifth years. In 70 per cent. of the cases occurring before the end of the second year the cause given was either dentition, debility, or unknown. In about 19 per cent. of all the cases disease of the naso-pharynx was stated to be the cause, whilst in 12 per cent. one of the infectious diseases—measles, scarlet fever, whooping-cough, diphtheria—was stated to be the cause. In more than half of the cases the otorrhœa was associated with enlarged tonsils and adenoids. The number of women who have attended the antenatal dispensary shows an increase from 3878 in 1925 to 4266 in 1926, and 866 cases were admitted to the antenatal wards in 1926 as compared with 730 in 1925. Antenatal consultations are now held at six centres, and the primary attendances at these centres numbered 2144 during the year, about 15 per cent. of the patients being primiparæ. The maternal death-rates per 1000 births during the last five years 1921–25 have been : in Glasgow 6·39, 7·60, 7·08, 5·84, and 7·63 ; and in Scotland 6·38, 6·60, 6·42, 5·82, and 6·16. During the last six years the death-rate from puerperal sepsis in Glasgow is given as 2·32, 3·00, 2·55, 2·21, 2·32, and (in 1926) 2·8. Dr. Macgregor points out that increase in cases indicates an improvement in notification. Of the 24,000 births over 11,000 were attended by midwives, who sent for medical help in 25 per cent. of their cases. Only about 13 per cent. of the ophthalmia neonatorum swabs examined were found to be gonococcal. The gonococcal cases numbered 99 and the resulting damage to eyesight was blindness in one eye in two cases and corneal scars in two others. The 386 non-gonococcal cases recovered without injury to eyesight. A maternity home had to be closed during the year owing to a serious outbreak of puerperal fever. There were ten cases of puerperal fever with four deaths and two cases of erysipelas with one death. The home was a well-equipped one, with accommodation for 20 patients, but the incident "raised important questions of medical administration concerned chiefly with late diagnosis and notification and certain details connected with the management of patients."

These defects were remedied in a thoroughly satisfactory manner before the reopening of the home.

Typhus fever returned after an absence of three years and there were eight cases. The disease was mild in the younger patients, but severe in the older, and resulted in one death. The outbreak has been fully reported in THE LANCET (1927, i., 887). The notifications of enteric fever numbered 100, as compared with 44 in 1925. Among the 362 contacts examined bacteriologically five gave positive results. Two of these had had missed mild attacks; one was a true carrier who had had enteric fever 23 years ago; the fourth was a carrier detected in 1922; and the fifth was an example of a urinary type of carrier. He was admitted to hospital in April, 1926, and discharged after three negative specimens of urine and fæces had been obtained. After his discharge his mother and three brothers and one sister became infected, and *Bacillus typhosus* was found to have reappeared in his urine. Treatment with vaccines and antiseptics had little effect, and on Jan. 28th, 1927, he was admitted to Belvedere Hospital for special treatment. A small outbreak of diphtheria was traced to a carrier in the person of the proprietor of a dairy. He continued to be a carrier in spite of five months' treatment with antiseptics, after which a two months' course of treatment with detoxicated diphtheria vaccine appeared to be effective in rendering the swabs negative. There were 109 notifications of encephalitis lethargica, of which 43 were true cases. Only 20 out of the 43 actually sickened during 1926. The others were cases missed in the early stage, which were notified in order to gain admission to Stobhill Hospital, where some 60 beds have been set aside for post-encephalitis.

A case of anthrax occurred in Manchester about the beginning of April, and a case which proved fatal occurred in Glasgow on August 1st. Both were traced to shaving-brushes imported from Czechoslovakia. A considerable consignment of these brushes arrived in the country and was distributed in all directions. The shaving-brush was made of horsehair dyed to imitate badger, the handle being of white enamelled wood with a white label inscribed in red letters: "Guaranteed free from anthrax." The retail price was about 6*d*. The matter was reported to the Czechoslovak Consul. The first sample brushes examined in Prague gave negative results, but later ones proved positive, and stringent precautions were at once taken to prevent recurrence.

There were 25 notifications of trachoma, for which disease a special hospital ward is provided at Ruchill. During 1926 treatment by ultra-violet light was made available for the trachoma patients, and appears to give better results than have hitherto been obtained by operative methods, especially in the case of pannus of the cornea.

The question of dealing adequately with persons suffering from venereal diseases who refuse to undergo treatment is discussed in the report. A conference of the local authorities of Scotland was held in Glasgow in March, 1923, and Dr. Macgregor thinks that another representative meeting should be convened in order to consider whether a joint course of action can now be agreed upon.

The interlocutor and note of the sheriff with regard to the mosquitoes on Bogton Marsh are given in full.[2]

Aberdeen.

Dr. J. Parlane Kinloch shows that, in addition to the immunisation work against diphtheria and scarlet fever carried out by the staff of the health department, the medical practitioners of the city performed 1414 Schick tests and 1069 Dick tests. They immunised 1232 persons against diphtheria, 293 against scarlatina, and 1800 persons against combined diphtheria and scarlatina.

During 1926 44 cases of dysentery were notified, of which 27 were infections with the Sonne bacillus, 12 with the Flexner bacillus, 1 with both Sonne and Flexner bacilli, and 3 with cysts of *Entamœba histolytica*. In the remaining case the bacteriological examination gave a negative result. Evidence is accumulating which goes to show that summer diarrhœa in Aberdeen is due to the Sonne bacillus, and arrangements are in force by which cases will be largely removed to hospital with a view to further investigations of the relation of this disease to infection with the Sonne bacillus.

In the 1925 annual report an estimated need for 5000 new houses was indicated. A further comprehensive survey of the city's housing requirements made during 1926 shows that this estimate is, if anything, under the mark. The survey has also revealed the fact that 43 per cent. of the new houses are occupied by persons who have not released another house for occupation. The town council have authorised the building of 1000 dwellings in 250 blocks, each containing four three-roomed flats, as a first instalment towards the shortage. Only 25 per cent. of the patients with notified pulmonary tuberculosis were found to be occupying a separate bed in a separate room, and more than 50 per cent. had not a separate bed. At the end of the year 106 beds were on loan with bedding. The loaned beds and bedding are well cared for and nearly always returned in good and clean condition.

The chief cause of mortality among infants in 1926 was, as usual, prematurity, which accounted for 69 deaths, about three-quarters of them occurring within the first week. The second chief cause was respiratory diseases with 58 deaths. The total of infantile deaths was 328. Midwives attended about 20 per cent. of the confinements in the area, and sent for medical help in about 27 per cent. of their cases. There were 3406 births, and 1079 expectant mothers sought advice at the antenatal clinics. The dental and ophthalmic clinics are run jointly by the education and health committees. The marasmic ward at the city hospital admitted 170 infants chiefly suffering from nutritional disorders; 116 were improved, 22 died, and 32 were discharged at the request of the parents. During 1926 90 milk samples were examined for tubercle and 7 (or 7·8 per cent.) gave a positive result. There are now only 18 dairy herds in the city, the average number of cows being 197. The herds are inspected once a month.

During 1926 there were 36 notifications of puerperal fever with eight deaths, the figures for the preceding five years averaging 15 and 9 respectively.

Paisley.

Dr. G. V. T. McMichael reports that the usefulness of the isolation hospital is to be greatly increased by the provision of eight single-bed cubicles for the scarlet fever ward, two single-bed cubicles for the diphtheria ward, and an operating theatre adjoining the ward which is to be used for puerperal fever. He lays stress on the fact, however, that a new modern fever hospital should be provided on the outskirts of the town. Two-thirds of the 342 notified cases of acute primary and influenzal pneumonia were admitted to three hospitals. The case-mortality of the hospital cases was 27 per cent., while the case-mortality of the 158 cases treated at home was 48 per cent. The use of scarlet fever antitoxin in the isolation hospital appeared to cut short the acute stage in severe cases of scarlet fever, but did not seem to lessen the incidence of complications. Prophylactic doses were found useful in preventing cross-infection. New probationers are immunised, if found susceptible by the Dick test. Of the 54 notified cases of ophthalmia neonatorum 18 showed a gonococcal origin. There was no serious impairment of vision from this disease. During February and March measles was very prevalent; there were 1512 cases with 37 deaths, all except one under 5 years old. At the height of the epidemic all the health visitors assisted the epidemic nurse in the visitation of cases. The special provision for puerperal fever includes a ward at the hospital with

[2] See THE LANCET, June 25th, p. 1366, and July 9th, p. 81.

a specially qualified nurse in charge and the services of the consultant obstetric surgeon at the Barshaw Hospital for Women and Children. The attendances at the antenatal and child welfare clinics continue to increase. The provision for maternity cases at Barshaw Hospital has been increased from 18 beds to 30, and during 1926 the admissions to the antenatal wards numbered 122. The first attendances at the antenatal consultations numbered 278, and in addition 294 antenatal cases were seen at Barshaw Hospital. The total births were 1929.

The Russell Institute was formally opened by Princess Mary on March 19th, 1927, and serves as a central institution for all the various health services of the burgh. The domiciliary treatment of consumption is a special difficulty in Paisley owing to the high proportion of one- and two-apartment houses. The difficulty is only partially met by three local voluntary agencies, whose funds are available for helping cases of tuberculosis. Encouraging progress is being made with the various corporation housing schemes.

Dr. McMichael's estimateof the houses required to meet the needs of the district at the end of the year was 921.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED AUGUST 20TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 103 (last week 127); scarlet fever, 1236; diphtheria, 672; enteric fever, 96; pneumonia, 466; puerperal fever, 35; puerperal pyrexia, 90; cerebro-spinal fever, 4; acute poliomyelitis, 21; encephalitis lethargica, 31; dysentery, 13; and ophthalmia neonatorum, 109. No case of cholera, plague, or typhus fever was notified during the week.

Deaths.—In the aggregate of great towns, including London, there were no deaths from small-pox, 2 (1) from enteric fever, 19 (0) from measles, 8 (5) from scarlet fever, 13 (5) from whooping-cough, 13 (2) from diphtheria, 50 (8) from diarrhœa and enteritis under 2 years of age, and 21 (1) from influenza. The figures in parentheses are those for London itself.

NURSERY PROBLEMS.—A series of lectures on this subject will begin on Oct. 19th, at 3.15 P.M., at 117, Piccadilly, London, W. Among the lecturers will be Dr. Eric Pritchard, Dr. J. A. Hadfield, Dr. Crichton Miller, Dr. D. W. Winnicott, Prof. R. H. A. Plimmer, and Dr. Leonard Williams. Particulars may be had from Viscountess Erleigh, 65, Rutland-gate, S.W.

THE FABRIC OF ST. THOMAS'S HOSPITAL.—In his annual report Sir Arthur Stanley writes that "amongst the repairs executed during the year has been the rebuilding of all chimney stacks. It was found that these were showing signs of weakness, attributable to two main causes: (1) The deterioration of the mortar; (2) to the increasing vibration which is distinctly affecting the whole of the building. The greater part of the hospital is built on made-up ground reclaimed from the river bed when the Albert Embankment between Westminster Bridge and Lambeth Bridge was built. Great care was taken at that time to provide efficient concrete foundations, and it is impossible to conceive that these foundations could have been more efficiently laid; but the vibration caused by the weight and rapid pace of increasing traffic throws a severe test on buildings, however admirably they may have been built 50 years ago." The consulting architect states, however, that the building is structurally perfectly sound. The income of the Hospital last year was £156,555 and the total expenditure £176,199. For the next six and a half years St. Thomas's will receive from Mr. W. R. Morris a contribution of £16,000 per annum. The sum of £30,000, in part contributed by the trustees of the Rockefeller Foundation, and in part by the medical and surgical teaching staff, is available for the erection of an unit laboratory. During the year 11,243 patients were treated and the daily number of in-patients was 547.

Correspondence.

"Audi alteram partem."

POOR-LAW HOSPITALS.

To the Editor of THE LANCET.

SIR,—Your correspondents in THE LANCET o August 6th who took exception to the phras "professional degradation," applied by Mr. Hamilto Bailey—who is himself a surgeon to the Dudle Road (Birmingham Union) Hospital—to the posi tion of the Poor-law medical officer, have evidentl misunderstood his attitude. Far from attackin the staffs of Poor-law hospitals, Mr. Bailey's objec is obviously to raise their prestige and status. Ham pered for years by those unfortunate terms, "Poor law," "workhouse," our infirmaries and their staffs however efficient, have not received the recognitio which is their due either from the profession or th public at large. The only arbiters of professiona status, the profession and the public, do not recognis or appreciate at their full worth our infirmaries an their medical officers, and it follows that so far a prestige is concerned "professional degradation becomes, sooner or later, the unenviable lot of thos who staff these institutions. This attitude will cor tinue as long as the guardians hold administrativ qualifications as alone worthy of recognition an advancement, rather than executive professional ski and experience. The remedy is clear. The stigma o Poor-law must be removed from our infirmaries, an the members of the staff must be given free scop to exercise and prove their professional ability t their colleagues and to the public. To the professio apart from technical skill, teaching, research wor and literary output are the only recognised index o efficiency and status. Our infirmaries offer a vas but neglected, field for teaching purposes, in man directions more suited to this purpose than som voluntary hospitals. The material is there and th staffs are competent. Why are they not reco nised as teaching centres? Research work, again, not the monopoly of any hospital—*all* hospitals shoul make it their chief and glorious aim. Why not research encouraged, and why are not mo results forthcoming from amongst the unique an varied material at our large infirmaries? One reas is that research work entails systematic records, an that adequate encouragement and provision f keeping records is lacking at our infirmaries.

In order to increase the prestige of the medic officers of our infirmaries with the general public, th should be allowed and even encouraged to compe for and hold appointments upon the staffs (in speciali departments) of our voluntary hospitals. Also son opportunity for private practice should be permitte to the senior members of the staffs of our infirmarie in order that they may obtain the stimulus of healt competition and the reward of enterprise. Deni these incentives, they are likely to drift into th state where "what might have been" becom beyond their reach, and "professional degradation begins to set in. So true has this prognosis prov in a succession of brilliant medical officers at one our large infirmaries that the clerk to the guardia decided to devote his 25 years' experience a influence to counteract such happenings in t future, at any rate in the infirmary to which he attached. He had observed the initial enthusias keenness, and capability of a succession of m selected for this work in open competition wi other candidates, and had observed and lament that their early promise was not fulfilled. Aft repeated attempts to amend their conditions of wo his efforts were crowned with success. The medic officer of his infirmary was allowed as a tentati experiment (*a*) to compete for appointment upon t staff of the local county hospital (and in this he h been successful), (*b*) to use certain hours for priva

actice. The result has been so to enhance the iciency and status of the infirmary that a growing mber of patients ask to be sent there rather than the voluntary hospital, and this is not because y have to, or wish to, pay less for their treatment, t because they know that they will not only receive atment just as good, but also be charged a fair l reasonable weekly amount assessed in a business- e way upon their income. Of course, I am aware t all this is quite illegal (for they are not indigent sons), but it has to be done where long waiting s and shortage of accommodation at the voluntary spitals make any port in a storm necessary. peration on terms of equality between rate-aided l voluntary hospitals would solve the problem of iting lists and shortage of hospital accommodation. The problem concerns general practitioners very ply, for we are often hard put to it to find nursing ommodation and specialist treatment for the jority of our middle and lower middle-class people. ipers and capitalists alone can command these vices when needed. There is in fact an urgent growing need and demand for private wards clinics for those who can and will pay in proportion heir income. Insuperable difficulties seem to have herto precluded the voluntary hospitals from ering for such patients, though many of them are trying the experiment. Our infirmaries will haps sooner be able to provide this accommodation specialist treatment than our voluntary hospitals. ate-aided specialist service is already an established at the local infirmary to which I have referred, the British Medical Association has approved of scale of fees for specialist services agreed upon. at has been arranged for paupers can surely be nged for ratepayers. The clerk to the guardians whose foresight and initiative these advances are has, moreover, got out plans for private wards at local infirmary; the erection of a nurses' home set free for this purpose several wards in the n building now occupied by nurses.

ut the most important point of all in counter- ng professional degradation is a change in the ude of the guardians towards their medical ers. The present policy of the guardians is to out the most promising of their medical officers " promotion " and forthwith subordinate their essional skill, experience, and knowledge to inistrative duties. As medical superintendents become loaded with administrative work which ained business man could perform much better. the climax of this policy is reached when the of them all is appointed chief medical officer forthwith is submerged in a purely administrative —I am, Sir, yours faithfully,

ghton, August 25th, 1927. HENRY J. BAILEY.

THE SMOKING HABIT AND MENTAL EFFICIENCY.

To the Editor of THE LANCET.

R,—I have had an opportunity to make a new y of the smokers and non-smokers at Antioch ge this year as a control to the study which de in 1925, the results of which appeared in THE ET of May 22nd, 1926. This year the College ded me with a somewhat larger sample: 231 smokers and 215 smokers. The superiority of non-smokers in scholarship is as clear as it was e previous sample. However, the evidence which ared two years ago tending to incriminate ing as a *cause* of poorer scholarship is missing year. No decline in scholarship is evidenced by nokers who have been with us for the past three a. There is no significant difference between cholarship of smokers who inhale and those who t, nor between those who smoke much and those smoke little. It is true that during the year ave dismissed because of low scholarship 10·5 ent. of our heavy smokers, 6·7 per cent. of lighter ers, and only 2·5 per cent. of our non-smokers, and, since the grades of students who have been dismissed are necessarily excluded from our study, the remaining heavy smokers gain from these dismissals. Nevertheless, I feel that the results this year definitely weaken the case against tobacco as a cause of mental inefficiency.

May I repeat, to avoid misunderstanding, that there is no possible doubt of the association between low scholarship and the smoking habit, whatever the explanation may be?

I am, Sir, yours faithfully,

J. ROSSLYN EARP.

Antioch College, Yellow Springs, Ohio, August 17th, 1927.

CERTIFICATION OF THE INSANE.

To the Editor of THE LANCET.

SIR,—That this subject is one demanding the serious consideration of the profession, and apparently getting it, is proved by the important leading article in your issue of July 31st, and by your reports in the same issue and the subsequent one of recent discussions in Edinburgh. Unfortunately, no conclusions were reached at either of these discussions, for the speakers failed to agree on and recommend any one policy. This unsatisfactory state of affairs will, I fear, only defer the passing of any legislation, since until the profession knows its own mind the Legislature is not likely to move in the matter at all. The trend of opinion is, however, towards securing early treatment for insanity, and reducing to a minimum the legal enactments that only delay this early treatment. It is true that in Scotland such are less evident than they are in England, and yet Prof. Robertson maintains that no records of illegal detention exist there for the past 70 years; and we know that the evidence submitted to the recent Lunacy Commission satisfied them that it was practically unknown in English asylums. Therefore, if it is loss of liberty alone that concerns the legal world in this question the lawyers need no longer concern themselves with it, for in the treatment of this disease, in the large proportion of cases, " loss of liberty " is absolutely necessary, just as much as it is—temporarily, it is true—in the cases of administering an anæsthetic or extracting a tooth.

Again, under the present state of affairs, I am at a loss to see why it is the doctor, and not the magistrate, who is prosecuted in many cases; all the doctor does is to issue a medical certificate, the magistrate it is who signs an order for the patient's detention, and it is this order, not the doctor's certificate, that legalises the lunatic's detention. Some magistrates are so conscientious in the discharge of their duties that they refuse to sign any order unless, and until, they hold a court, *de lunatico inquirendo*, on their own, summon witnesses, take evidence upon oath, and generally delay the treatment of the patient, besides running up big legal charges. On the other hand, there are magistrates who, satisfied with the bona fides of the certifying practitioner, issue the necessary order without ever seeing the patient at all or taking any evidence.

It is thus seen how absurd is the calling in of the aid of the law before a medical man can satisfactorily treat this sad disease; and the cure is simple—divorce law from medicine altogether. It is true the lawyers would naturally object to any such plan, on the grounds that their relation has existed from times immemorial, but they have had their fling and it is now the doctors' turn. This divorce is the ideal at which we should aim, and if the B.M.A. make it their policy we should see a better state of affairs in this country than even exists in Scotland. All the legal elements that at present entangle the satisfactory treatment of insanity, and that select this only disease as the one to be " legalised," should be eliminated altogether—a medical certificate, and the consent of the Board of Control, being sufficient to empower the keeper of an asylum hospital to detain the person referred to " for care and treatment " until he is recovered, or

until the Board of Control makes other arrangements for his care.

It will be noted that I still consider the doctor's certificate an important document, and on it legal proceedings may be taken—no medical man can escape this risk. But I would suggest that such risks should be left open, as they are in other cases of carelessness or malpractice in medicine or in surgery. At present insanity is still looked upon almost as a crime, and it is because of this interference by the law in its treatment that the public cannot get over the feelings of shame and disgrace associated with this disease in any member of their family. To change the name of the disease, or the place of detention, is not going to reduce this disgrace—it is merely throwing dust in the eyes of the public. Until the profession has finally made up its mind, and our slow-moving legislature has evolved legislation—if such were still necessary—to simplify the treatment of the insane, the doctor will experience the same difficulties as have surrounded him in the past, and it will be a very serious matter if, as has been reported, a clause is being inserted in many partnership agreements prohibiting the certifying of lunatics. No general practitioner should certify an alleged lunatic unless he is prepared to state that the patient "is dangerous to himself or others." Unless this is so the patient cannot *legally* be declared of unsound mind, and unless a medical man can certify to this fact he should, if he would seriously consider his own future personal and financial safety, abstain from certifying. Only thus will he avoid possible litigation until the time comes when insanity is included among other diseases without the odium of legal red tape to hamper its early treatment.—I am, Sir, yours faithfully,

T. DUNCAN GREENLEES.

St. Leonards-on-Sea, August 19th, 1927.

CANCER AND ADRENALIN.

To the Editor of THE LANCET.

SIR,—The effect of adrenalin on transplanted animal tumours, recorded in THE LANCET of August 20th by Drs. T. Lumsden and J. G. Stevens, was described by me 22 years ago,[1] and the process of regression illustrated by two drawings. In my experiments the adrenalin was injected at a site remote from the tumour and not around the tumour, as in Lumsden's experiments, since a therapeutic agent which will act only on local application to a growth is obviously of little practical value. Subsequently Reicher[2] has reported the regression of transplanted tumours in rats and mice after the injection of adrenalin into the tissues surrounding the growth.

I am, Sir, yours faithfully,

W. CRAMER.

Imperial Cancer Research Fund, August 19th, 1927.

THE LABELLING OF EGGS.

To the Editor of THE LANCET.

SIR,—I was particularly interested in the communication from Dr. A. G. Everard, who apparently is a home egg producer of the better sort. I can assure him that medical officers of health generally would be only too pleased to carry out more active supervision of the eggs as supplied to the English consumer if the matter was not hedged about with so many difficulties. What is required, in my opinion, is a very simple legal enactment indeed, without any loopholes in the matter, but I fear this is too Utopian at the present time whilst there are such facilities for a certain class of English egg producers to fortify their home production by means of the imported variety.

I am, Sir, yours faithfully,

E. G. ANNIS,

August 19th, 1927. Medical Officer of Health, Greenwich.

[1] Second Scientific Report of the Imperial Cancer Research Fund, 1905, p. 60.

[2] Deutsche Med. Wochenschrift, 1910, p. 1356.

ASTHMA AND ARTHRITIS IN ALTERNATION

To the Editor of THE LANCET.

SIR,—It is a common observation that asthmat symptoms, in some patients, disappear during a intercurrent infection. This is the basis for th "protein shock" treatment of asthma. It would n therefore be surprising if asthmatic symptoms di appeared during the subacute phase of an infecti arthritis. The course of many cases of rheumato arthritis is not steadily progressive; remissions occu during which joint swellings, with pain and tenderne subside. It cannot therefore be unexpected that wh rheumatoid arthritis occurs in an asthmatic t symptoms of these two maladies may alternate. Dr Harold O. Long reports in your issue of August 20 a case of alternating rheumatoid arthritis and asthm and says he is on the track of an intestinal organis which he hopes is the cause of both conditions, a that a course of autogenous vaccines from this sour will arrest both conditions. The ætiology of the t disorders may be analogous. Asthma is genera recognised to be an allergic manifestation. I belie there is evidence that in rheumatoid arthritis t affected joints are sensitised to streptococci, and th the morbid process in the early stages of this conditi is one of "reactions" in such sensitive joints. B from the mere coexistence of asthma and arthritis c surely cannot conclude that the two maladies have t same essential cause.—I am, Sir, yours faithfully,

Harley-street, W., August 22nd. KENNETH STONE.

MEDICAL SCIENCE IN THE CITY OF YORK.—In a communication from Dr. G. A. Auden concerning e association of the City of York with the history of medic which appeared in THE LANCET of August 6th, "Dad de Bres" should read "David de Brus"—otherwise Dad Bruce, King of Scotland. Dr. Auden informs us that e earliest entry of a freeman barber-surgeon in the Roll Freemen is under the date 1299, and that this entry is follow by several hundred names of physicians, apothecars, surgeons, and barber-surgeons who received their freedo down to the latter half of the 18th century, when the list p lished by the Surtees Society was brought to an end.—ED.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—Dr. Reginald W. Statham has been elected Master of this Socie

At recent examinations the following candidates we successful in the undermentioned subjects:—

Surgery.—G. C. Rhys-Jones and E. H. Waller, Charing Cross Hosp.; and J. L. M. Wood, Sheffield.

Medicine.—L. J. Lawrie, London Hosp.; B. Rosenzt, Middlesex Hosp.; S. B. S. Smith, St. Bart.'s Hosp.; and V. R. Smith, Manchester.

Forensic Medicine.—K. E. Clark, Charing Cross Ho W. H. Collins, London Hosp.; F. W. Crossley-Holl St. Bart.'s Hosp.; T. C. Lansdale, Guy's Hosp.; J. Mi St. Bart.'s Hosp.; and V. R. Smith, Manchester.

Midwifery.—L. Ashkenza, Middlesex Hosp.; T. M. Bea Leeds; A. F. J. D'Arcy, St. Mary's Hosp.; J. Mi St. Bart.'s Hosp.; N. S. J. Roberts, Bristol and Ro Free Hosp.; and J. L. M. Wood, Sheffield.

The Diploma of the Society was granted to the follow candidates entitling them to practise medicine, surgery, midwifery: L. Ashkenza, T. M. Beattie, W. H. Collins, T. Lansdale, L. J. Lawrie, S. B. S. Smith, and E. H. Waller.

Medical Diary.

Information to be included in this column should reac us in proper form on Tuesday, and cannot appear if it rec us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Sept. 5th, to SATURDAY, Sept. 10th.—QUEEN MARY'S HOSPITAL for the East End, Stratford E. Post-graduate course in Medicine, Surgery, and the Specialties. Lectures and clinical demonstrations daily in all departments.—BETHLEM ROYAL HOSPITAL, St. George's Fields, S.E. Lecture-demonstrations in Psychological Medicine on Tuesday and Saturday at 11 A.M.—Further information from the Secretary.

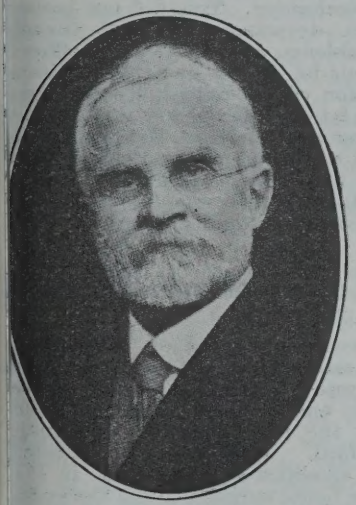
Obituary.

ALBAN HENRY GRIFFITHS DORAN, F.R.C.S. ENG.,

CONSULTING SURGEON TO THE SAMARITAN HOSPITAL.

As we announced briefly in the Students' Number ast week Mr. Alban Doran, the well-known natomist and gynæcologist, died on Tuesday, August 23rd, in St. Bartholomew's Hospital.

Alban Henry Griffiths Doran was the only son of ohn Doran, an Irishman, who came to London in onsequence of political troubles at the beginning of he nineteenth century. John Doran was a well-nown littérateur, classical scholar, and antiquary, nd was for a brief time editor of the *Athenæum*, ut is best known for his association with *Notes and ueries*, which he conducted with conspicuous success for many years. Alban Henry Griffiths Doran, his only son by Emma, daughter of Captain Gilbert, R.N., was influenced throughout his life by his father's love of letters, from whom he inherited the skill and grace which were the features of his considerable literary output, as well as untiring industry in research.



ALBAN DORAN, F.R.C.S.

Doran was born in 1849 in Pembroke-square, Kensington, and received his preliminary education at a school in arnes, entering the Medical School of St. Bartholoew's Hospital in his eighteenth year. He was a stinguished student, winning prizes with annual gularity, and on qualification as M.R.C.S., L.S.A., btained the resident posts and was afterwards ppointed demonstrator of anatomy in the medical hool. A year later he was appointed by the Royal llege of Surgeons of England anatomical assistant, s chief being Sir William Flower, who was Curator the College Museum from 1861 until he succeeded wen in 1884 as Director of the Natural History useum. Flower, both as Curator and later, in ccession to Huxley as Hunterian Professor at the llege, contributed greatly to the arranging and tension of the splendid anatomical preparations, d found in Doran an invaluable lieutenant. The llecting and setting in order of the materials quired for display led to the institution of a talogue of the pathological specimens in the useum, and in the compilation of this catalogue oran worked indefatigably with Sir James Paget d Sir James Goodhart.

Doran looked back on his youthful period in e Museum with great pleasure for it was then that made an intensive study of the ear bones of mmals, assembling and cataloguing for the College collection which is still regarded as a standard. e results of his inquiry into the anatomy and olution of the auditory ossicles formed an elaborate nograph which was published in the *Transactions* the Linnean Society, and in the evening of his life thing pleased him so much as a reference by a esent-day authority to his early monograph. Even he lay on what proved to be his death-bed his erest was at once aroused when a friend mentioned him that the accuracy of his description of the bones of the golden mole had been highly commended in a monograph just communicated to the Royal Society and thereafter he relapsed into the lament that there were two important gaps in his collection of auditory ossicles in the Museum of the College he had never succeeded in filling up. Such an instance is characteristic of Doran's attitude to the world; it was knowledge, not money, he thought of.

In 1875, while employed in the Museum, Doran took the Fellowship of the College, and shortly afterwards was elected assistant surgeon to the Samaritan Free Hospital. Here he came under the direct influence of Spencer Wells, who perhaps more than any one man can be called the originator of modern abdominal surgery. Wells was then at the top of his fame, having justified 20 years of assiduous work in perfecting his technique of ovariotomy, which operation was largely discredited by the medical profession when his enthusiasm and scientific skill re-established it as a life-saving procedure. It was no easy task to assist Spencer Wells, who was an extraordinarily careful operator and had progressed very far in operative success before the spread of Listerian doctrines made his technique, as applied to ovariotomy, the routine procedure over the whole field of abdominal surgery. Doran became well known in this department of surgery, and was attached to the Samaritan Hospital for over 30 years, and established there his claim to being a fine operator and an individual thinker. He never enjoyed a large practice, but he was always accepted, and rightly so, by the medical profession as a leading authority on his subject. He was an honorary Fellow of many European and American obstetrical and gynæcological societies, and was elected President of the Obstetrical Society of London in 1899.

Doran was not a voluminous author along professional lines. Apart from the note on the morphology of the ossicula auditûs, his only considerable contribution to medical literature was the "Handbook of Gynæcological Operations," which was published as far back as 1887. This work hardly obtained the reception which it deserved, and this may have been due to the difficulty in which reviewers were placed through its appearance at a time when there was a feeling that oöphorectomy was being performed with too great frequency, or at any rate that many of the questions in connexion with that operation, and with supravaginal hysterectomy, were the subject of discussion. Bantock, Wells, Knowsley Thornton, Keith in Edinburgh, and Lawson Tait had met with remarkable success here, but their followers, unaided by a proper understanding of antiseptics and without the individual skill of their masters, had brought operative gynæcology into some disrepute. Doran's book took no side in questions which were being anxiously asked. But it treated the surgical anatomy of the female organs with great care, and it is interesting to note, in view of the latest activity of the author's life, that several chapters were devoted to an account of instruments and appliances and their right use. Other sections summed up pathological appearances, explaining their significance and influence on diagnosis in the clear way that might have been expected from one who was a frequent speaker in the debates of the Pathological Society. The whole range of operative gynæcology was covered by accurate descriptions of the various procedures, and Doran was early in his distinct pronouncement that ovariotomy should be performed immediately the tumour is diagnosed, a view which few but Spencer Wells and his immediate disciples would have taken some years previously, but which had become tenable in consequence of the great reduction in mortality occurring after abdominal operations brought about by the discoveries and teachings of Lister. He was the first editor of the *Journal of Obstetrics and Gynæcology of the British Empire*, and his conduct of the enterprise during its first two years of life laid the foundation of after success.

Outside medicine Doran's pen was especially employed in the study of Shakespeare, and when he delivered the Annual Oration before the Medical

Society of London in 1889, he took Shakespeare as his subject. He was also interested in certain by-paths in English and French history, and it may be noted that his father had not only resided for many years on the Continent but was detained in France for three years as a prisoner during the Napoleonic wars.

Doran retired from practice about 18 years ago, and at once engaged in work in the Hunterian Museum. His first voluntary task was the revision of the extensive series of gynæcological specimens, for which he prepared a new descriptive catalogue—one which has been of the greatest use to all who consult this part of the Museum. His second task was the preparation of a descriptive catalogue of the great collection of obstetrical instruments presented to the College by the old Obstetrical Society upon its amalgamation with the Royal Society of Medicine. This undertaking involved Doran in a laborious and prolonged historical inquiry into the evolution of obstetrical instruments, and nowhere is his accuracy and breadth of scholarship so apparent as in this catalogue—in reality a text-book of reference. Having finished this task, he then proceeded to prepare a new catalogue—one for which there was great need—of the great collection of surgical instruments and appliances preserved in the Museum of the Royal College of Surgeons. Day after day he toiled at this task, which in the form of eight typewritten volumes was completed only two years ago. No one can write on the history of surgical instruments with profit without consulting this work, and it is to be hoped that means will yet be found for its publication. Eyesight and strength began to fail just as Doran brought this bold undertaking to an end, although latterly he was able to pay occasional visits to the Museum in order to catalogue additional gifts that had come in. It is pleasant to know that the work is being continued by Doran's friend, Mr. C. J. S. Thompson.

Alban Doran never married. After his father's death he lived for many years with his widowed mother in Granville-place, but since his retirement from practice, brought about by eye trouble, he had occupied a flat in West Kensington where he was for a long period under the care of Dr. Rickard Lloyd, who has sent us the following note: "In his declining years he used to discuss his growing afflictions with such courage and patience that he seemed to be considering the age, symptoms, and ailments of someone other than himself. While sight allowed he was a constant reader of current literature, although his especial interest was in medical news. Full of information, it was a great pleasure to hear him narrating his reminiscences of old friends and associations, and always showing notable affection for his old medical school and 'the College.'"

WILLIAM DIXON JEFFERSON, M.R.C.S. ENG., L.R.C.P. EDIN.

THE death of Dr. W. D. Jefferson took place at Ripon on August 22nd after an illness lasting some weeks. Born at Northallerton in 1855, he was the son of Mr. W. T. Jefferson, a solicitor, and went to Giggleswick School and later to King's College, London. He qualified as M.R.C.S. Eng. at the age of 22 and immediately settled at Ripon, taking over the practice of the late Dr. Frankland. For the last 50 years he had practised in the neighbourhood, holding the appointment of medical officer of health of the borough, besides being surgeon to the Ripon Cottage Hospital and medical officer to the first district of the Ripon Poor-law Union. This last post he resigned about a fortnight before his death. Dr. Jefferson was made an honorary associate of the Order of St. John of Jerusalem in recognition of his services in giving ambulance training to railway employees. He married in 1891 the daughter of the Rev. W. Gray, Vicar of Sharow. One of his two sons, Lieutenant Ingleby Jefferson, lost his life in the submarine service during the late war. The other holds a commission in the Welsh Guards.

ARTHUR DRURY, M.B. EDIN.

To the profession at large Dr. Arthur Drury, who died on August 22nd, at Halifax, was best known for his work as hon. secretary of the Jenner Society, as a president of the Association of Public Vaccinators of England and Wales, and as editor of the Jennerian supplement of the *Medical Officer*. Primarily, however, he was a Halifax practitioner, and nearly all his life was spent in his native town. As a boy he was a pupil at the Making Place School, Soyland, and though he continued his education at Edinburgh, where he took the first prize in mental diseases of the Royal College of Surgeons, he returned to Halifax soon after graduating in medicine in 1887, and took up practice in the neighbourhood. He was appointed medical officer of the Halifax Poor-law Union and public vaccinator for the borough, and in this last work found much to interest him, so that he became a keen advocate of vaccination, as well as an authority on its technique. This did not prevent him, however, from devoting time and thought to other medical problems, and apart from office in vaccinist organisations he was at one time chairman of the Halifax division of the British Medical Association. During the late war Dr. Drury was attached to St. Luke's War Memorial Hospital, Halifax, holding the rank of major in the Royal Army Medical Corps, and for some years he acted as medical adviser to the Halifax Rugby League. He was 65 years of age, and he leaves a widow, a son, and a daughter.

THOMAS PORTER GREENWOOD, M.R.C.S. ENG., L.R.C.P. EDIN.

Dr. T. P. Greenwood, who died on August 15th whilst leaving his house in answer to an urgent call had for many years enjoyed a large operating practice in South Lincolnshire and Rutland, and was medical officer of health to the rural districts surrounding the town of Stamford. Educated at University College, London, he qualified M.R.C.S. Eng. in 1875 and after a period as house surgeon to the Derbyshire General Infirmary went to Stamford Infirmary in the same capacity. He became assistant partner and successor of the late Dr. Row, and joined the surgical staff of several local hospitals, including the Stamford Infirmary and Browne's Hospital. Soon after settling in the district Dr. Greenwood was appointed medical officer of health, and he did excellent work in connexion with housing, scavenging, and the provision of hospital accommodation not only for Stamford but for the county of Rutland. He promoted the building of a small-pox hospital and of a maternity and children's ward at the Stamford Infirmary, and during the Rutland epidemic of poliomyelitis he placed a ward at the disposal of the authorities and was, as in other emergencies, unsparing of his time and labour.

"In the course of a long and successful career, writes a colleague," Greenwood acquired all that should accompany old age—honour, troops of friends, and the gratitude of innumerable patients whose lives he had saved or prolonged, or whose sufferings he had alleviated. But at three score years and ten he still preserved a keen interest in all medical matters. He was always eager to learn; new methods were carefully studied and easily acquired. As he was qualified as far back as 1875, it is doubtful if he could have seen much nose and throat work in his student days, but being keenly interested in this branch of work he became surgeon to the education authorities of the surrounding counties, and was almost invariably successful in the modern operation for the enucleation of tonsils and the removal of adenoids..... Indeed, his ready sympathy with the aspirations of modern public health work was one of his most remarkable traits. It has been said that no great man is a hero to his valet, but Dr. Greenwood was certainly one to his assistants. One of his old assistants advised his partner, who was migrating to Rutland, 'to call

reenwood when in difficulties, the best general actitioner in the Midlands.' What greater praise uld a man desire ? "

In 1903 and again in 1925 Dr. Greenwood was esident of the Midland Branch of the British edical Association. He died in his seventy-fourth ar, and leaves a widow and three daughters.

OLIVIER POLHILL TURNER, M.R.C.S. ENG., D.P.H.

GREAT regret is felt in Hastings at the death of r. O. P. Turner, deputy medical officer for the town, hich occurred on August 19th. He had been in poor alth for some time, but his death seems to have en hastened by going to help in the resuscitation of o people who had been rescued from the sea after bathing accident. Dr. Turner was a Londoner and idied medicine at University College. He qualified 1902, and after a house appointment at Brighton nt to Hastings some 20 years ago as school medical icer. Always a busy man, he was a prolific writer, d contributed a number of articles and letters to edical journals. During the late war he held a mmission as surgeon in the Royal Air Force, and ed as medical officer in the pathological department the Addington-park War Hospital, Croydon. He s a genial and generous man, and his somewhat erved manner did not prevent him from quickly king friends of those with whom he came in ntact. He leaves a widow and two sons.

HILIP FOSTER, M.D. ST. AND., M.R.C.S. ENG.

Dr. Philip Foster, who has died at Leeds at the a of 88, was the son of Dr. Edwin Foster, who ctised in the town for many years. He was icated at Leeds Grammar School and the Leeds hool of Medicine, and graduated as a doctor of dicine at St. Andrew's University when he was y 22, being the youngest holder of the degree at t time. With his brother, Dr. A. C. Foster, who rvives him, he had lived for many years in close rement at the house in Park-place which their ther had occupied before them. Dr. Foster's erest in medical and surgical science was conerable, and he published a number of works on hol, the maintenance of health, and similar ics. What brought him most to the notice of the fession in general was his report[1] of a case of Carean section in 1872. According to his account operation had only proved successful in six cases viously in this country, though it had been performed more than 60 times. Dr. Foster's comment this state of affairs was as follows: "Although results of operative procedure are thus shown to so terribly unfavourable, still to leave the patient nature, delivery being impossible through the ural passages, is to leave her to die. There is no ding, therefore, the responsibility of the operati ; and, if but one case in a thousand were successful, it would still be an imperative duty to urge to undertake it. I feel that the importance of *ating early* cannot be too strongly insisted n."

r. Philip Foster was a reader and writer of catholic e and sound judgment. He was especially well ed in the literature of Shakespeare, and some ye s ago wrote a series of 40 anniversary articles on Shakespeare in a Yorkshire newspaper. Starting practice in the days when a doctor made his rounds on horseback, he retained all his life a love of horses, breeding his own mounts both for professional work and hunting. He took a keen interest in racing, and is said to have seen the St. Leger run 65 times. His father, Dr. Edwin Foster, made a rule of never sending a bill for medical services, and his sons, we are informed, have generally followed this example.

[1] THE LANCET, 1872, i., 753.

FRANCIS BARTON, M.R.C.S., L.R.C.P.

THE death took place on August 14th, at Liverpool, of Dr. Francis Barton, who had been in practice for many years on Merseyside. He was a native of Woolwich, and was the fourth son of the late Colonel W. Barton, R.A. He came to Liverpool from the Channel Islands and received his medical education at University College, Liverpool, qualifying as M.R.C.S. Eng. in 1903. He began practice in Wallasey, but about 20 years ago he transferred to the Prince's-park district of Liverpool. He held several medical appointments, including that of medical officer of the Mersey Docks and Harbour Board, the Mercantile Marine Association, and the Rechabites. He was an active member of the Wesleyan community in Liverpool, a prominent Freemason, and a founder of the Liscard Temperance Lodge. He devoted a large part of his time to philanthropic work among the poor in the neighbourhood of Mill-street. Dr. Barton's wife died only a few months ago.

Appointments.

DUHIG, D. J., L.R.C.P. Edin., L.R.C.S. Edin., L.R.F.P.S. Glasg., has been appointed Honorary Assistant Surgeon to the Nose, Throat, and Ear Department, Dewsbury Infirmary.

Surgeons under the Factory and Workshop Acts: SIMPSON, C. B., M.R.C.S., L.R.C.P. Lond., for the Filey District, York, East Riding; WOOLLCOMBE, A., for the Okehampton District, Devon.

Medical Referee under the Workmen's Compensation Act: CAHILL, Lieut.-Colonel R. J., D.S.O., M.B., B.Ch., of Chester, to be an additional Medical Referee for the districts of the Chester and Nantwich and Crewe County Courts (Circuit No. 7).

Vacancies.

For further information refer to the advertisement columns.

Albert Dock Hospital, Connaught-road, E.—H.S.'s. At rate of £110.

Ayr County Hospital.—Sen. H.S. and Jun. H.S. At rate of £100 and £80 respectively.

Bath, Royal United Hospital.—H.P. and Asst. H.S. At rate of £120 and £100 respectively.

Birmingham City.—M.O.H. £1800.

Birmingham and Midland Eye Hospital.—Jun. H.S. £110.

Bristol Royal Infirmary.—Sen. Res. M.O. £200.

Cardiff City Mental Hospital, Whitchurch, nr. Cardiff.—Sen. Asst. M.O. £550.

Derbyshire Education Committee.—Asst. Sch. M.O. £600.

Devonport, Royal Albert Hospital and Eye Infirmary.—Asst. H.S. Also H.S. £150.

Dreadnought Hospital, Greenwich.—H.P. and H.S. Each at rate of £110.

Hastings County Borough.—Asst.M.O.H. and Asst.Sch. M.O. £600.

Hospital for Tropical Diseases, Endsleigh-gardens, N.W.—H.P. At rate of £110.

Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W. Res. H.P. At rate of £100.

Ipswich, East Suffolk and Ipswich Hospital.—Two H.S.'s and one H.P. Each at rate of £100.

Leeds Public Dispensary.—Hon. Dental Surg.

Leicester Royal Infirmary.—H.P. and H.S. Each at rate of £125.

Lister Institute of Preventive Medicine, S.W.—Research Fellowship in Bacteriology. £500.

London Hospital, E.—Surg. and Phys.

London Lock Hospital, 91, Dean-street, W.—H.S. At rate of £200. Also Surg. Reg. £100.

London Lock Hospital, Harrow-road, W.—H.S. At rate of £150.

Lord Mayor Treloar Cripples' Hospital, Alton and Hayling Island, Hants.—Asst. Res. M.O. £300.

Manchester, Ancoats Hospital.—H.S. At rate of £100.

Manchester Babies' Hospital, Burnage-lane, Levenshulme.—Res. M.O. At rate of £125. Also Jun. Res. M.O. At rate of £50.

Manchester Ear Hospital, Grosvenor-square, All Saints.—Non-Res. H.S. At rate of £150.

Manchester, Royal Children's Hospital, Pendlebury.—Res. Med. and Surg. O.'s. At rate of £125. Also O.-P. Dept., Gartside-street, Two Asst. M.O.'s. Each at rate of £150.

Manchester, St. Mary's Hospital, Whitworth-street.—Two H.S.'s. Each at rate of £50.

National Hospital for Dis. of Heart, Westmoreland-streeet, W.—Res. M.O. At rate of £150. Also Out-patient M.O. At rate of £125.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Res. M.O. £300.

Northampton General Hospital.—Two H.S.'s. Each at rate of £150.

Nottingham General Dispensary.—Res. Surg. £250.

Preston and County of Lancaster Royal Infirmary.—H.P. £190.

Queen's Hospital for Children, Hackney-road, E.—H.S. At rate of £100.

Royal National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.

St. Peter's Hospital for Stone, &c., Henrietta-street, W.C.—H.S. At rate of £75.

Salisbury General Infirmary.—H.S. £150.

Samaritan Free Hospital for Women, Marylebone-road, N.W.—Anæsthetist. £30.
Sheffield Royal Hospital.—Res. Anæsthetist. At rate of £80.
Tunbridge Wells Eye and Ear Hospital.—H.S. £150.
Warrington Infirmary and Dispensary.—Sen. H. S. £250.
West London Hospital, Hammersmith-road, W.—H.P. and two H.S.'s. Each at rate of £100.
Westminster Hospital Medical School.—University Readership in Pathology. £800.
Whipp's Cross Hospital, Whipp's Cross-road, Leytonstone, E.—Res. Asst. M.O. £400.
Willesden General Hospital, Harlesden-road, N.W.—O.-P. Clin. Asst.
Williton Rural District, Somerset.—M.O.H. £110.
Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Stamford (Lincs.) and Llanelly (Carmarthen).

The Secretary of State for the Home Department gives notice that, in consequence of the death of Mr. W. J. Greer, L.R.C.P., F.R.C.S., one of the medical referees under the Workmen's Compensation Act, 1925, for the districts of the Chepstow, Newport, and Pontypool County Courts (Circuit No. 24), the appointment held by him is vacant. Applications (*from surgeons*) for the post should be addressed to the Private Secretary, Home Office, Whitehall, London, S.W. 1, and should reach him not later than Sept. 17th, 1927.

Births, Marriages, and Deaths.

BIRTHS.

BURNELL.—On August 17th, at Lemon-street, Truro, the wife of G. F. Burnell, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

NUNAN.—On August 21st, at Nairobi, the wife of Patrick Nunan, M.D., of a son.

WALKER.—On August 22nd, at Elgin-avenue, London, W., the wife of William Wood Walker, M.B., Ch.B. Aberd., of a daughter.

MARRIAGES.

FORBES—PENNY SNOOK.—On August 17th, at Holy Trinity Church, Weymouth, Dr. Colin Macphail Forbes to Helen Edith Mary Penny Snook, youngest daughter of Dr. and Mrs. Penny Snook, of Netherton House, Weymouth.

DEATHS.

BRADY.—On August 25th, of peritonitis, at Sydney, N.S.W., Andrew John Brady, L.R.C.S.Irel., L.R.C.P. Irel., and L.M.

CAMPION.—On August 23rd, at Cairo, Egypt, suddenly, from heart failure, Oliver St. Leger Campion, M.R.C.S. Eng., L.R.C.P. Lond., late Captain R.A.M.C., and Flight-Lieut. R.A.F., aged 35.

DORAN.—On August 23rd, Alban H. G. Doran, F.R.C.S. Eng., of Lisgar-terrace, W., aged 78.

DRURY.—On August 22nd, at Landon House, Halifax, Arthur Drury, M.B., C.M. Edin., aged 65 years.

GIBBES.—On August 25th, Cuthbert Chapman Gibbes, M.D. Aberd., C.M., M.R.C.P. Lond., D.P.H. Camb., of Oxford and Cambridge Mansions and Harley-street, aged 76.

HAWES.—On August 20th, at Abingdon-court, W., Francis B. Hawes, L.R.C.P. & S. Irel., aged 69.

JEFFERSON.—On August 22nd, at North House Ripon, William D. Jefferson, M.R.C.S. Eng., L.R.C.P. Edin.

LOW.—On August 29th, John Spencer Low, C.B.E., M.B., Ch.B., B.Sc. Edin., D.P.H. Lond., Barrister-at-law.

MCLACHLAN.—On August 21st, at Abbotsford-park, Edinburgh, John M. McLachlan, L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., late of Burbage, Leicestershire, in his 40th year.

PARSONS.—On August 21st, John E. H. Parsons, M.B.E., M.R.C.S., L.R.C.P. Lond., of Theobald House, Rochester.

TURNER.—On August 19th, of angina pectoris, at Marina, St. Leonards-on-Sea, Olivier P. Turner, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. Oxf., Deputy Medical Officer of Health for the County Borough of Hastings, aged 57.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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Notes, Comments, and Abstracts

THE MEDICAL AFFINITIES OF G. P. R. JAMES.[1]

Mr. S. M. Ellis, who is well known for his writings Victorian writers, has followed up his study of Harris Ainsworth, G. P. R. James's contemporary and literary riv by a study of James himself. We confess that the impressi made upon ourselves by Mr. Ellis's account is that Jan was as mediocre as his books. By heredity he should ha been something more, for his grandfather was Dr. Rob James, the friend of Johnson, Garrick, Boswell, a Goldsmith, and the self-claimed inventor of the well-kno James's powders. As to the real composition of t preparation there is much diversity of opinion, but antimo was the chief ingredient, and antimonial powders were new thing in James's time, for so far back as 1587 Honourable Robert Dudley had invented the Pul Cornachinus, a mixture of diagridium, tartar, and diaphore antimony with cream of tartar. Dr. Robert James lef fortune of £8000 per annum, so in one way or another he highly successful. He was twice married, and by his secc wife had two daughters, one of whom witnessed all horrors of the French Revolution and had the doubt honour of being sought in marriage by Robespierre, and th sons, the youngest of whom, Pinkston, was the father G. P. R. James. Pinkston James in his youth served in navy, but about 1782 left the service and began to st medicine in Edinburgh. He married in 1791, and for ma years practised at 12, George-street, Hanover-squ where the future novelist was born at a date which variously stated as from 1799 to 1801. He appears to h entered the army, and it is stated that he was sent Waterloo, but his corps arrived too late to have any shar the actual battle. These things are stated on family evider but James could only have been about 15, an age which low even for a cornet or an ensign. After peace was decla James sojourned on the Continent and developed a consi able linguistic gift, wandering about France, Spain, Germany. He returned to England about 1825, and in 1 married Frances Thomas, daughter of Honoratus Le Thomas, who was twice President of the Royal Colleg Surgeons of England, although according to popular rep no great surgeon. After writing an astonishing numbe books, making a good deal of money, living in innumera different districts and houses, losing his money and continuing his hospitalities, James and his family departed New York, where they arrived in 1850. Here and in Bos he gave lectures, and after a short stay at Stockbridge Massachusetts, was appointed British Consul at Norf Virginia, a place of which his son, Charles James, giv dismal account. The climate, owing to the proximity of "Dismal Swamp," was unhealthy, malaria and yellow f abounded, and in 1855 there was a terrible epidemic of latter, the infection being apparently imported by American ship. It is intriguing to note that "the pestil was presaged in Norfolk by a plague of peculiar flying ins partly yellow in character," but epidemiology as a them fiction possessed no attractions for James, though ye fever in Massachusetts had evoked some 50 years be Brockden Brown's remarkable novel, "Arthur Merv In 1856 the consulate was removed from Norfol Richmond, whither James and his family removed, and the ill-luck which seemed to pursue them, met an epidem diphtheria, and James was attacked.

In 1858 James was appointed consul at Venice, and family left for Europe the same year. Charles Leigh Ja who was born in 1846, and had left England for Ameri the age of 4, has left an interesting account of his impres of London on his return to England, aged 12. Amongst things he notes of Regent and Oxford Streets: "T crossing at the Circus is the most crowded I ever anywhere. It is no unusual circumstance to have to 15 minutes for a chance to get over on foot." Of Ja short, somewhat happy-go-lucky career in Venice, unt death in 1860, Mr. Ellis gives an amusing account, as of Charles Lever, his brother novelist, who was cons Spezia.

Despite Mr. Ellis's efforts to establish a claim for J as a good novelist, we cannot go with him. It is true James's writings have been admired by Thackeray, Steve and Thomas Hardy, but to-day they have lost ap Scott, anyone over 50 can still read with pleasure, but vastly inferior is James's "Forest Days" to S

[1] The Solitary Horseman, or The Life and Adventu G. P. R. James. By S. M. Ellis. Kensington: The Cayme 1927. Pp. 303. 15s.

Ivanhoe." We would advise anybody who wishes to enjoy ames to-day to read not his own works, but Thackeray's Barbazure." Incidentally the Thackeray reference to hich Mr. Ellis alludes in a footnote on p. 267, and apparently nnot trace, is from "The Rose and the Ring." As an teresting and affectionate account of a writer who in his ay gave pleasure to thousands, Mr. Ellis's study is well orth reading.

THE REPORTING OF INQUESTS.

THE rider of the jury at a recent inquest reopens a subject eviously dealt with in THE LANCET on more than one casion, when we expressed the belief that the publication details was largely responsible for the great increase suicide from coal-gas. It is, we think, impossible to ntrovert this belief, and the views then expressed e strengthened by the remarks of the coroner and e jury's rider in the case under discussion. The roner, however, in telling the jury that the publicity the coroner's court was one of its greatest assets, and that had never sat *in camera* to the exclusion of the press, posed a situation in which publicity is obviously both an set and a danger. The aim of a coroner's court is to make own the facts concerning a particular death, and for that ason its procedure is less rigid than that of other courts, which the aim is justice as between one party and another. e public rightly demands that there shall be no secrecy ien a fellow citizen has died in circumstances other than ose attending ordinary processes of disease or decay; but satisfaction of this demand surely should be attained thout the unfortunate secondary results that so often ompany publicity. Legislation has stopped the publica- n of detailed divorce reports; they were recognised as pealing to unhealthy sentiments, though the evidence of m resulting from them was weaker than the evidence harm from detailed reports of inquests. The news value of uest reports is not based upon a legitimate demand for avoidance of secrecy, but upon unhealthy sentiments ich are pleasurably stimulated by such reading; and parently the pleasure does not diminish by the repetition the stimulus. The results of publishing the letters of cides are only part of an evil which undoubtedly leads an increase of suicide. It can be met by a better state public opinion, and, as suggested by Dr. Waldo, by the d influence and example of newspaper proprietors and tors.

FOLK-MEDICINE OF EXMOOR.

T is customary to write of primitives as though they sted only in the Australia of Spencer and Gillen, the zil of Spix and Martius, or in the South Sea Islands, enland, and Central Africa. But as a matter of fact the nitive is in our midst. He abounds even in London urbs, and is much to the fore wherever a remnant of ient peasantry lingers unconverted by education, or ier by progress. At the present day Exmoor Forest is largely a primitive stronghold, and there, more than in other English countryside, the old folk-medicine of our estors lingers among the elderly, however much they y deny the fact. Some half-century ago rational methods beliefs must indeed have been rare in this isolated on. Charms were universally employed, not only in rinary cases, where they are to be expected, but where nan beings were concerned. Mr. F. J. Snell, in his inating "Book of Exmoor" (Methuen and Co., 1903), tes the following as being still in vogue at the time wrote. It is a sovran charm to be used in cases of norrhage.

> "Christ was born in Bethlehem,
> Baptised in Jordan.
> The waters, wild and rude,
> The Child, mild and good,
> Put its foot into the flood,
> And bade it turn."

ciatica was, and indeed is, known by the admirably riptive term "boneshave," and the charm used to drive way is heathen in tone: "Boneshave right, boneshave ght, as the water runs by the stave [the line of willows the bank of a stream], so follow boneshave." The rer reclines in a damp situation by a riverside, and the m is repeated over him by a friend. However, rumour onest for once, and reports that a certain John Roden after undergoing the treatment. Another drastic edure, making for the survival of the robust, is prophy- ic, and consists of rubbing a baby all over with snow as as snow has fallen after its birth. This preserves nst chilblains in later life. A child with a congenital ia is passed through a cleft tree, a maiden ash that g possessed of peculiarly magical properties. This tment points back to pre-Christian paganism, even gh it be practised at sunrise on a Sunday. Mr. Snell knew a man whose brother had been thus radically cured. To prevent misconceptions the patient was willing to indicate the whereabouts of the tree. A child with whooping-cough was laid on the ground in a sheepfold. Goitre was cured by the touch of a corpse. Sufferers from lues were bidden adopt a signaturist treatment, and to wear the leg of a toad, torn from the live creature, in a bag round their necks. The wearing of a necklace made of borrowed silver coins was held to cure epilepsy in the course of a year. In the case of a girl epileptic a silver ring was substituted for a necklace or bracelet, and this had to be paid for by a tax on bachelors at the rate of a penny a head.

The seventh child of a seventh child was a born curer, and could touch for the King's Evil on Sundays. Such a one was sometimes christened "Doctor" or "Doctress." In a village churchyard near Bridgwater in Somerset there is a tombstone erected to the memory of Doctress Anne Pounsberry, "who departed this life Dec. 11, 1813, aged 73 years." "Stand still," continues her pious epitaph, "and consider the wondrous works of God."

The Evil Eye is known on Exmoor as elsewhere. Indeed, many of these beliefs and practices are universal; they seem to have become concentrated on this wild moorland in an especially well-developed form. It is to be hoped that some future psychologist or anthropologist will be moved to deal with primitive mentality in Western Europe, and especially in Ireland and the Celtic Fringe generally, in the manner of M. Lévy-Bruhl's classical works on the natives of different parts of the world. Such a work, for various reasons, seems still to be hanging fire. We need not go to taboo, mana, orenda, and other supernatural beliefs mentioned by Lévy-Bruhl, when we have their analogues, the "mascot" and "luck," constantly in our midst.

PEPSIN.

A METHOD of isolating the peptic enzyme directly from the gastric mucosa is described by F. Fenger and R. H. Andrew in the June number of the *Journal of Physiological Chemistry*. These workers dissect out the pepsin-producing glandular layers of pigs' stomachs a few minutes after death, clean and trim them in ice-cold water, allowing them to digest with acid water in a cold room overnight, and thus extract from the cells the native insoluble pepsin, partly as activated acid-pepsin and partly, as the hydrogen-ion concentration becomes less, as the enzyme itself. When the pH reaches 3·4 to 3·6 acetone is added in volume about equal to the total water-content. This admixture, while keeping the enzyme in solution, throws out mucin and leaves tissues undissolved. The addition of more acetone—about three times the water-content—very rapidly throws out the crude enzyme freed from more objectionable impurities. This pepsin dissolved in acidulated water may be precipitated by the addition of alkalis, but the authors prefer dialysis which introduces no new substances and reduces the acidity very gradually. At about pH 2·4 precipitation commences, going on until pH 3·85 is reached. From the examination of a series of specimens obtained by fractional dialysis, it is concluded that the purified enzyme is a nearly ash-free protein, quite insoluble in distilled water, but clearly and completely soluble in acidulated water. Its iso-electric zone lies between pH 2·4 and pH 3·85, the most active precipitates being separated at the higher hydrogen-ion concentration. The proteolytic activity of these ranged from 1 : 70,000 to 1 : 45,000 U.S.P. assay. The most active preparations were obtained in the autumn and the least active in spring.

The conclusion that the enzyme is a protein may be sound. It should, however, be pointed out that many other enzymes, assumed to be protein, have on purification ceased to give the characteristic reactions of proteins. Fenger and Andrew's process of cold digestion and extraction and subsequent dialysis doubtless tends to keep out of the preparation many products of hydrolysis which would be found in substantial amounts at higher temperatures.

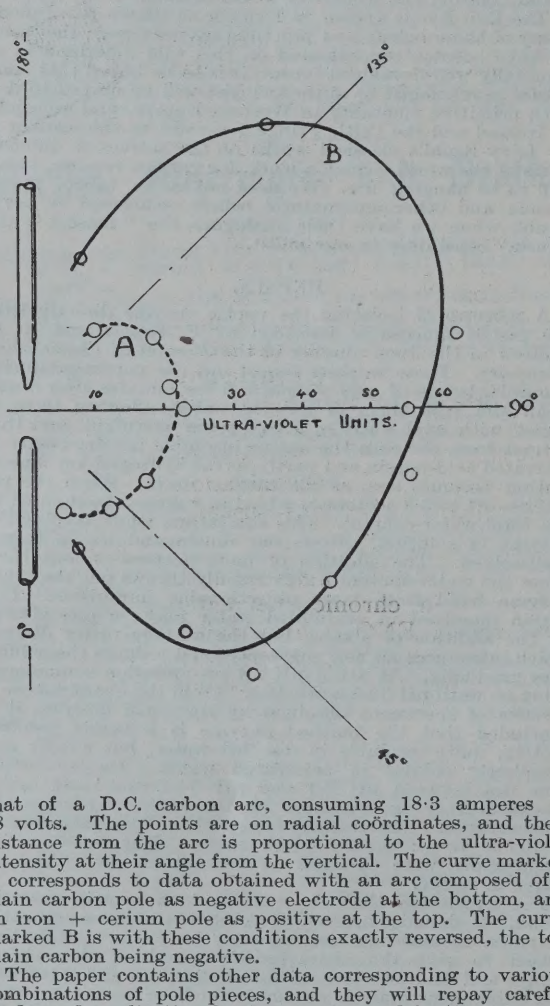
It will be interesting to see whether further work confirms the protein character attributed to the enzyme and justifies the conclusion of J. H. Northrop, which the authors "have found to be the true state of affairs," that "pepsin digestion is a chemical reaction in which the pepsin as well as the protein takes part . . . . the process . . . . is a progressive one in which the enzyme combines with other proteins and gradually loses its identity and physiological characteristics."

THE DESIGN OF THERAPEUTIC ARC LAMPS.

A PAPER by Mr. T. C. Angus, in the August number of the *British Journal of Actinotherapy*, will be read with interest by those who make use of carbon arc lamps for therapeutic purposes. Mr. Angus has made a series of measurements upon the erythema-producing rays emitted from a number of open arcs under various experimental conditions, and the results of these measurements afford valuable data affecting the economic running of these lamps. The rays

were measured by letting them pass into a Griffith & Taylor cadmium photo-electric cell,[1] having first passed through a filter of vitaglass to cut off the short wave-lengths. The ionisation current in the photo-electric cell served as a measure of the erythema-producing rays emitted by the lamp under different working conditions.

The carbon arc has long been used as a source of light, and when used for this purpose the top carbon of an arc is invariably made the positive or anode electrode, because most of the light comes from the crater at the end of the positive carbon. Makers of carbon arcs for therapeutic purposes have followed this example in construction, but Mr. Angus shows that a considerable increase in ultra-violet radiation occurs when the bottom carbon is made the positive electrode. This observation was first made by means of measurements upon the horizontal intensity, but the author has also carried out a long series of tests in other directions, and the main results can be seen from the accompanying diagram taken from his paper. The case illustrated is



that of a D.C. carbon arc, consuming 18·3 amperes at 78 volts. The points are on radial coördinates, and their distance from the arc is proportional to the ultra-violet intensity at their angle from the vertical. The curve marked A corresponds to data obtained with an arc composed of a plain carbon pole as negative electrode at the bottom, and an iron + cerium pole as positive at the top. The curve marked B is with these conditions exactly reversed, the top plain carbon being negative.

The paper contains other data corresponding to various combinations of pole pieces, and they will repay careful study and application by those concerned in the economy of these sources of ultra-violet radiation.

THE PATHOLOGY OF BLUSHING.

BLUSHING, as Darwin wrote, is the most human of all the expressions of human emotion, for in normal people it signifies an awakening of feeling in those regions of the mind which in ordinary superficial social intercourse lie beyond a barrier. There are, however, people who blush on the slightest provocation, and who suffer so much distress from this disability that they urgently demand relief.

In a recent article (August 13th, p. 1003) in the *Presse Médicale*, Dr. P. Hartenberg outlines a theory of the causation of blushing and suggests a remedy. A person becomes an "ereuthophobe," he says, (1) because he blushes excessively, (2) because he is of an anxiety-type. He concludes from his observations of the malady that its organic basis is an abnormal condition of the heart and the vessels, particularly those of the head. The heart is excitable, wit an exaggerated impulse but no acceleration of rhythm the carotid arteries are sensibly dilated and their pulsatio is visible as well as palpable. These pulsations extend t the arteries of the head and face. Blushers suffer also from feeling as of hot gusts in the head and from profuse perspira tion; their blood-pressure is apt to be low, and they ofte have dermatographic skin. They are the victims of a co titutional imbalance between their vaso-constrictor an vaso-dilator systems, the latter predominating. The blushing is not confined to emotional crises, but follows heavy meal, a rapid change from cold to warmth, or th act of lying down. It is essentially a physiological ailmen and by no means all blushers are neurotic. Ereuthophobi he describes as the combination of the blush-syndrom with an anxiety neurosis, and the combination is a ver formidable one, for the fear makes the blushing wors and a vicious circle is formed which soon becomes a co ditioned reflex. Dr. Hartenberg proposes to treat th physiological blushing, first, by eliminating heavy meal hot rooms, alcohol, and all other physical causes of vas dilatation; and by forbidding all but a minimum intake fluid until the volume of the blood is reduced. The dilatatio itself is counteracted by daily doses of quinine, ergot adrenalin. For the anxiety state he recommends sedativ and warm baths. He claims that under this régime th abnormal activity of the heart soon abates, with all i symptoms, and that the tendency to blush is broug within reasonable bounds; this has a powerful effe on the patient's psychological state, and, finding tha he is no longer blushing as he did, he gains confiden and freedom.

[1] THE LANCET, 1925, ii., 1205.

NATIONAL INSTITUTE FOR THE BLIND.

THE annual report of the National Institute for the Blin 1926–27 (headquarters, 224–28, Great Portland-stree London, W. 1), is an exhaustive account of the work of t largest institution for the blind and the largest publisher embossed books in the world. Last year nearly 20,0 bound volumes were issued in Braille type, and the numb of pamphlets, magazines, and newspapers exceeded 300,00 In addition, about one-fifth of these numbers were issued Moon type, a modified Roman type adapted for the use those who become blind late in life. The books are not novels, but include educative works of all kinds. T average cost price of a volume is 8*s*., but a discount of tw thirds of the cost price is allowed to all blind purchase throughout the British Empire, and copies of all publicatio are presented gratis to the National Library for the Bli for free circulation among blind readers. Taking into co sideration these and other concessions, the approxima amount needed to keep the Braille and Moon producti up to its present standard is £12,000 per annum. One the most popular of the periodicals is the *Braille Rac Times*, produced with the coöperation of the B.B.C., w broadcasted an appeal for funds sufficient to enable t Institute to purchase the necessary additional plant. T circulation of this periodical already amounts to 1500 copi a fact which is some indication of the boon that wireless proving to the blind. A scheme was initiated by the Institu last year providing for the reconstruction of its council a more representative basis, and empowering it to op negotiations with local voluntary agencies with a view framing collecting agreements. This scheme shou minimise overlapping in either administrative or colle ing activities; arrangements with 37 local agencies ha already been concluded, while many more are under co sideration.

The Institute's Home Industries Committee is concern with the welfare of blind home workers in the metropolit district south of the Thames and in the counties of Ke Surrey, Sussex, and Hampshire. At present there 184 blind men and women who come within the scope this organisation, by which the expense of the middlem in obtaining raw material and marketing the finished goo is eliminated, and the workers are helped in various oth ways. Through the Institute's Appointments Board further number of blind workers have been placed factories ordinarily employing only sighted labour. About are engaged as telephonists throughout England and Wal but the majority of the workers trained under the auspi of the Institute are engaged in the profession of massa Twenty years ago the average wage earned by the bli was somewhere about 15*s*. per week. Last year the aver payment made per week to blind men was £2 3*s*. 2*d*., a to blind women £1 15*s*. 4*d*. Among other undertakings which the Institute is directly responsible are the Chor Wood College for Blind Girls, three Sunshine Homes Blind Babies, homes and hostels for blind women, and management of the Greater London Fund, which assi all the leading metropolitan workshops and societies the blind.

THE LANCET

[o. 5428. LONDON, SATURDAY, SEPTEMBER 10, 1927. CCXIII.

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Experimental Researches
ON THE
NATURE OF THE BACTERIOPHAGE.

Lecture given in the Institute of Pathology and Research, St. Mary's Hospital, London, on May 5th, 1927,

BY DR. CARL PRAUSNITZ,
PROFESSOR OF BACTERIOLOGY AND HYGIENE IN THE UNIVERSITY OF BRESLAU.

THE first conclusive observation on the phenomenon of transmissible lysis in bacteria was made by Twort: that cocci obtained from glycerinated small-pox vaccine, when grown on agar, occasionally showed peculiar malformations of their colonies, which appeared as if gnawed away at the periphery by some foreign agent; and that by using filtrates of such cultures the malformation was produced at will in colonies of hitherto normal cocci. The second fundamental observations we owe to d'Herelle.

D'HERELLE'S OBSERVATIONS AND VIEWS.

It had for long been remarked that it is often impossible in dysentery patients to cultivate the usual micro-organism although, when once obtained, it grows well on ordinary laboratory media. D'Herelle assumed that in the intestine of such patients there must be present a substance harmful to the dysentery bacillus. In order to prove its existence, he passed emulsions of dysenteric stools through bacterial filters; the filtrate, free from micro-organisms visible or cultivable, when added to fresh broth cultures of the dysentery bacillus, not only inhibited their growth, but in a few hours completely dissolved them, leaving the broth absolutely limpid and sterile, as if no bacteria had ever been in it. The next advance in his research was made, when he found that addition of a small quantity of this limpid fluid to a fresh broth culture of dysentery bacilli brought about the same clarification and that the process could be repeated at will in subsequent passages. The clarifying power of the fluid increased from passage to passage, until it reached its maximum—at this stage it is as a rule active to a thousand millionfold dilution.

Further experiments were carried out with solid media. The mixtures of the cleared fluid with bacterial emulsion were spread over the surface of agar. When large quantities of the fluid were employed, the agar remained completely sterile; if the quantity was reduced, irregular isles of bacterial growth developed on the agar surface; on still further reduction of the fluid a uniform growth of bacteria was obtained, interrupted only here and there by circular spots or areas denuded of bacterial growth; the number of these clear areas was shown to be directly proportional to the quantity of the clear fluid added to the bacterial emulsion. It was thus proved that the agent producing this bacterial lysis was capable of endless reproduction in living bacterial cultures, that it was *enhanced* in its dissolving power by repeated passage through such living bacteria, and that it was a *particulate* substance; for otherwise the occurrence of the isolated lytic areas on the agar surface could not be satisfactorily explained.

The facts observed were explained by d'Herelle as due to a living micro-organism, minute in size as compared with the bacteria attacked, a filterable ultra-virus which he named the bacteriophage.

THE BACTERIOPHAGE.

Further researches showed that as a rule multiplication of the bacteriophage takes place only so long as the bacteria are actively proliferating. As yet it has not been possible to obtain any multiplication of the phage on killed bacteria. One step in this direction has, however, been made by Twort, who showed that a mixture of dead and living bacteria with the phage could under certain instances be completely dissolved, thus proving that under favourable circumstances even dead bacteria were attacked and dissolved by the phage. This has been confirmed by Bronfenbrenner and Muckenfuss.

The phage is specific to a certain extent. Some dysentery phages act only on certain strains of dysentery bacilli; on the other hand, many phages act on quite a number of other bacteria—e.g., a dysentery phage may dissolve not only Flexner, Shiga, Hiss-Russell, and Strong bacilli, but also typhoid, paratyphoid, coli, staphylococci, &c. Usually, however, a phage is primarily active only against one species of bacteria, although its "virulence" may be enhanced for other bacterial species by repeated passage through their cultures. Phages have been obtained from a large number of bacteria—e.g., plague, hæmorrhagic septicæmia, pyocyaneus, cocci. For a long time it was difficult to obtain a cholera bacteriophage, but Miss Meissner and I found a simple method, by intraperitoneal injection of sterile broth in guinea-pigs, of proving the presence of the phage in the normal guinea-pig.

Phages are normally present in the intestines of many animals, and also in fæcally polluted rivers, lakes, and sea-water. In the human intestine they are not often found, as was proved by me and Van der Reis on examining a large number of diseased and healthy persons with his intestinal cartridge method.

Bordet showed that animals can be *immunised* against the bacteriophage by repeated injections. With a serum thus obtained I found that the neutralisation of the phage by its corresponding antibacteriophage serum follows the "law of multiples" formulated by Ehrlich—i.e., if a given quantity of phage is rendered inert by a certain amount of the specific serum, then a multiple of the phage is rendered inert by the corresponding multiple of the serum.

Many disinfectants destroy the phage, yet on the whole their concentration and time of action must be considerably greater than is required for the destruction of most bacteria; it approximates more closely to that required for tubercle and spore-bearing bacteria. Lastly, the interesting fact has been demonstrated that in contact with a weak phage, the corresponding bacteria may become refractory to its action—i.e., they may lose their capacity of being killed and dissolved by the phage; this resistance towards the phage is hereditary to a certain extent and is very strictly specific (Bail).

The question of primary interest deals with the *nature* of the bacteriophage. D'Herelle's original view that it was a filterable virus has been much debated, and a number of different and contradictory hypotheses have been enunciated; these may be collected under the following main headings: (1) The phage is derived from the bacterium; it might be a bacterial fragment (Bail) or an autolytic ferment (Kabeshima). (2) The phage is derived from the host (Bordet). (3) A further suggestion, first made by Doerr, and elaborated by Eastwood, is that the bacteriophage action is due to an excess of the hormones which in their normal concentration stimulate bacterial growth; thus, the balance between assimilation and dissimilation would be removed in favour of the latter.

(1) IS THE PHAGE DERIVED FROM THE BACTERIAL CELL?

This view is shared by numerous authors who have succeeded in isolating phages from old laboratory stock strains of bacteria showing no outward signs of bacteriophagy. D'Herelle was the first to explain this observation by the assumption of "mixed cultures." In fact, knowing that the phage is found more or less regularly in the intestinal contents, and occasionally in other parts of the normal and diseased body, it is easily understood that bacteria isolated from man or animals may be contaminated with the phage; if the phage is weak, the bacteria may rapidly become refractory; in subcultures the bacteria will be propagated alongside of the phage indefinitely, the more so because it has been shown that in a culture of refractory bacteria there are always present some individuals less resistant, which will serve for the propagation of the phage. This explanation is particularly borne out by the careful experiments of Flu, who from such cultures succeeded in obtaining the bacteria "ultra-pure,"—i.e., free from the phage—and in subculturing these ultra-pure strains indefinitely without a phage reappearing in them. Still,

this view is strenuously opposed by numerous investigators, according to whose view, the bacteriophage is always derived from the bacterium. Two explanations are chiefly given for the supposed bacterial origin of the bacteriophage.

(*a*) According to Bail, bacteriophagal action is due to the formation of minute (filter-passing) fragments from the bacterial cells; these, on addition to normal bacteria, should attract and absorb a part of their nutritive substance, in the endeavour to attain the normal bacterial size and form. This must lead to the destruction of the bacteria deprived of part of their nutritive substance, and in this process fragmentation would occur afresh, and so on. This hypothesis would seem to be akin to the modern work of the French school on filterable forms of certain pathogenic bacteria, particularly the tubercle bacillus. However, I wish to emphasise that this "vampyre-theory" is open to several objections; chief of these is the following fact, found by Wollmann, Otto, and myself. A broth filtrate containing the phage needs must also contain dissolved products of the corresponding bacteria. If now animals are immunised against such bacteriophage broth, their serum is found to possess substances antagonistic both to the phage (antibacteriophage substances), and to the bacterium (agglutinins, complement-binding substances). If such a serum is treated with emulsions of the bacteria (technique of Castellani), it can be completely deprived of its antibacterial power, but its anti-bacteriophage titre remains absolutely unchanged. To my mind, this is proof positive that the substance of the phage is chemically distinct from that of the corresponding bacterium.

Further facts have been brought out in absorption tests carried out by Gildemeister. Alkaline colloids (oxide of alumina) do not absorb it at all, neutral colloids (blood coal) slightly, but *acid* colloids (oxide of silica, kieselgur) very strongly; a phage filtrate, shaken with SiO_2, may lose its lytic power completely; but from the absorbate the phage can be partially recovered by treatment with weak alkali (n/30 or n/100 ammonia). It would thus appear to be *electropositive*. This is corroborated by a research carried out in my Institute by Karl Koch, which showed that under the influence of a weak electric current under a potential of 100 volts the phage undergoes cataphoresis and wanders towards the cathode. Experiments on the electric charge of the bacteria have not given uniform results, but it is worthy of note that some authors consider them to be electropositive. On the other hand, Bechhold has recently shown certain ferments to be electronegative.

(*b*) A different view from that of Bail was first pronounced by Kabeshima. According to him, bacteriophage action is merely a special case of fermentative autolysis, a phenomenon long known to occur in many bacterial cultures. With this hypothesis the phage would be a catalyser, which, on addition to certain bacteria, activates the pro-ferment of the autolytic ferment normally contained in them; the bacteria undergo dissolution, whereupon the catalyser again becomes free and activates the pro-ferment of other bacteria in the culture, and so on, until the available bacteria have all become dissolved. On the face of it, this hypothesis would seem very plausible, but one objection at once arises, it is a question of *quantity*. It has been indicated that from a small, almost infinitesimal amount of the phage one can obtain, by repeated passages in broth-cultures of the corresponding bacterium, any amount of the phage; if now the catalyser is an "outside" substance, this would not seem feasible. One would have to make the further assumption that the catalyser was also derived from the bacteria. But if both catalyser and pro-ferment are contained in the bacteria, then why are the bacteria not always and normally dissolved? Obviously, one would have to imagine a further hypothetic substance, a "catalyser to the catalyser," and thus there would be no end to these complications, we find ourselves reduced *ad absurdum*. Apart from this objection, however, the ferment hypothesis of bacteriophagy fits in well with several other facts, as will be shown further on.

(2) IS THE PHAGE DERIVED FROM THE HUMAN (O ANIMAL) HOST?

Bacteriophagy is a disease of the bacteria, inherite from generation to generation. Is this disease a infective or a constitutional one? Bordet believe the disease to originate from antagonistic substance of the host, possibly of leucocytic origin; his theor is briefly summed up in the name given by him t the phenomenon: "hereditary nutritive vitiatio of the bacteria." Thus fermentative processes i the host would induce an abnormal metabolism c the bacteria; the more rapidly the bacteria grov the more speedily would they be broken down an dissolved. Nothing is more natural than that suc a disease should be inherited continuously i organisms like bacteria, which are incapable of repair ing the constitution of their germinal plasma by sexu proliferation.

It has been stated by Borchardt that bacteriophag can be set going by adding trypsin, activated by enterokinas to the bacteria; but these experiments have not bee satisfactorily reproduced by others. Besides, they are n conclusive, because it is often possible to obtain the phag from the normal body, but this is far easier with filtrates c the intestinal contents than with those from the pancreas.

Still, it must be admitted that certain facts favou an hypothesis which views the phage as an inanimat ferment. Chiefly in favour of such hypothesis are th following facts:—

(*a*) The fact above mentioned, that the phage can l almost quantitatively adsorbed by certain colloids, at fir sight appears more easily explicable by the ferment hypothes than by the supposition that the phage is a living organisn But quite recently Bechhold has showed that from broth culture of bacteria 99 per cent. of the microbes ca be removed by shaking with an electronegative colloi (oxide of silica).

(*b*) It has been mentioned before that an immune seru neutralises the bacteriophage according to the "law c multiples." These relations are known to occur regularl between toxins and antitoxins, also between ferments an antiferments; but we know of no case where a microl or its endotoxins are destroyed by the corresponding immur serum according to this law. Besides, so far as we knov such destruction is only effected by a serum in the activ state—i.e., in the presence of *complement*; but the bacteri phage is neutralised equally well by an inactivated seru (after heating for half an hour to 56° C.) as by the same seru in its active state. Thus the supposition that the phage a living being is only tenable if we make the further assum tion that its destructive action on the bacteria is the resu of ferments carried or secreted by the phage.

The oft-quoted fact that disinfectants destroy th bacteriophage is explicable equally well by th ferment hypothesis as by that of d'Herelle, fc all ferments are more or less injured by treatmer with disinfectants. In spite of the objections he stated, a certain number of investigators, to whom also belong, believe d'Herelle's view to be the corre one.

IS THE BACTERIOPHAGE A LIVING ULTRA-MICROBE

The case for the ultra-microbe is not an easy on as has been shown. How is one to prove the life c something no one has ever seen? Particulate w must assume it to be, for otherwise it is hardly possibl to explain the formation of separate, localised area denuded of bacterial growth in thinly-seeded age cultures, nor the proportionality of these areas t the concentration of the phage.

My first endeavour was to estimate the *size* of th phage corpuscles. To this end, membrane filters c graded permeability were employed, as furnished b the firm de Haen in Göttingen. The membrane are a fraction of a millimetre in thickness and hav an absolutely smooth surface; thus their powe of absorption, as was shown in control experiments is extremely low, so that a reduction of the strengt of the phage when filtered through these membrane must be attributed not to absorption, but solel to the relation between the size of the pores and th diameter of the phage corpuscles. Whilst the fines

ilters retained the phage, and the most porous ones et it pass almost without loss, a certain intermediate grade reduced the power of the phage considerably. Bechhold gives the following sequence of size of colloidal substances :—

Collargol 20 μμ.
Colloidal gold 1–4 μμ.
1 per cent. gelatin solution.
1 per cent. hæmoglobin solution (mol. weight about 16,000).
Serum albumin (mol. weight 5000 to 15,000).

In my experiments the filters which partially rrested the phage also arrested collargol in about he same proportion, whilst allowing the practically nreduced passage of 1 per cent. gelatin solution, per cent. hæmoglobin solution and serum albumin, s well as of pepsine, trypsin, and an invertase rom yeast cells. It therefore seems permissible o estimate the size of the phage corpuscle to be omewhere near that of collargol—i.e., 20 μμ. There good reason for believing that the micro-organisms f pathogenic filterable virus are considerably above nis dimension, and only slightly below the limit of ur vision; their diameter is probably between 00 and 200 μμ. *Is it possible to imagine particles of nly 20 μμ to be endowed with life?*

The mass of a phage particle of 20 μμ diameter would e, assuming its density = 1, $\frac{4}{3}\pi.10^{-18}$ g. In order to timate how many proteid molecules such a mass could ntain, it shall be assumed that each molecule, presumably roteid, must contain at least 1 atom of sulphur. This eighs approximately 10^{-24} g. The amount of sulphur in acteria has been found to be 1/100 per cent. If the chemical mposition of the phage were similar, then one phage rpuscle would contain $\frac{4}{3}\pi.10^{-22}$ g. of sulphur and this ould represent about 400 atoms of sulphur; thus it may e deduced that one phage corpuscle contains about 400 olecules of proteid matter. Can so minute a body be edited with the complex manifestations of life?

The chief of these manifestations—metabolism and oliferation—will not help us in the decision of is difficult question: metabolism cannot be proved exist, since in bacteriophagal multiplication there always simultaneously present the proliferation of e bacteria; proliferation, or what appears to be oliferation, is therefore accounted for by the ferment pothesis as well as by the assumption that the iage is something living. But there still remain two atures which, so far as is known, are absolutely aracteristic of living bodies: random variability, correctly called "mutation," and variability in definite direction—e.g., in overcoming noxious fluences, "modification" or adaptability. It has en my main object to demonstrate both of these atures in the phage.

(*a*) *Random Variability.*—From an agar plate lture presenting some distinct bacteriophagal clear eas, different areas are subcultured in tubes of oth, which have been seeded with equal numbers of cteria; the tubes are incubated for 24 hours at ° C., then filtered through bacterial filters. As a le, the different subfiltrates, although derived parently from one original phage strain, show arked differences in their behaviour towards anti-cteriophage serum and towards disinfectants.

The neutralisation by the antiserum is measured as llows: into each one of a series of sterile test-tubes we 1 c.cm. of a freshly prepared emulsion of bacteria in broth, c.cm. to contain about 250,000,000 bacteria). To one of ese tubes we add 0·2 c.cm. of a mixture of equal parts of the age and its antiserum in thousandfold dilution with normal ine and mix thoroughly; to a second tube also containing .cm. of the bacterial emulsion we add 0·2 c.cm. of a mixture equal parts of the phage and normal saline; thus the latter be serves as control to the former. From each of the two xtures we withdraw with a calibrated capillary 0·1c.cm., w it out on to the surface of a fresh agar plate, spread roughly over the surface with a glass spatula, and ubate for 24 hours at 37° C. The number of clear ar the bacterial growth on these plates indicates the num of viable or active phage corpuscles. Since the antibacteriophage serum neutralises at least part of the phages in the first mixture, the number of areas developing in the culture inoculated from the phage antiserum mixture must be smaller than that in the control; the ratio of these two figures indicates the titre of the antiserum.

If, now, we had originally subcultured not only one area, but several, always working under exactly the same conditions with broth and agar of the same date of making, then we find the titre to show marked, sometimes very pronounced, differences for the different substrains of phage. Similarly, this difference is at least equally marked, if we treat the phage not with antiserum, but with some disinfectant, the technique otherwise being the same.

(*b*) *Variability in a Definite Direction.*—It is a well-known fact that bacteria can be accustomed, by repeated passages through weak concentrations of certain disinfectants, to grow in the presence of concentrations of this disinfectant, which at the outset would have killed them—e.g., *B. coli* in phenol. It was my aim in like manner to accustom the bacteriophage to disinfectants. Thus, mixtures of equal parts of a phage and of sublimate solution 1 : 10,000 were kept at room temperature in the dark for a day, then seeded on an emulsion of 250 million bacteria per c.cm. of broth and spread on the surface of an agar plate as described before. Some of the clear areas developing on the agar were picked off, inoculated into fresh bacterial broth culture, incubated, and after complete lysis had occurred, were filtered. The strains of phage thus obtained may be called "sublimate passage strains"; of each of these one part was again mixed with equal parts of sublimate 1 : 10,000, another part, serving as control, was similarly diluted with normal saline. The mixtures were kept in the dark at room temperature for a day; then from each of them 0·1 c.cm. was transferred to 1 c.cm. of fresh bacterial broth emulsion, and 0·1 c.cm. of this mixture was at once spread over the surface of fresh agar plates in the manner described before. The proportion of areas developing in each pair of agar plates indicates the destructive action of the sublimate on the phage, or, in other words, the resistance of the particular passage strain to sublimate. From these agar plates some of the areas were again picked off, and thus a second series of passage strains was obtained, which was again mixed with sublimate and treated further, as described for the first series. After nine such passages, the number of phage areas on the agar plate inoculated from the sublimate-treated phage and from the control was approximately equal, thus showing almost complete resistance to sublimate to have developed in the sublimate passage strain. Yet the original phage strain, carried on for an equal number of passages without contact with sublimate, showed complete destruction by the same sublimate concentration. Thus it has been proved that the phage can be completely accustomed to certain concentrations of sublimate, which at the outset had sufficed to destroy it.

Similar experiments were carried out with phenol. The thirty-third passage in phenol was destroyed in two days by phenol 1·9 per cent., the control strain of phage, which had never come in contact with phenol, was destroyed by phenol 1·5 per cent. Analogous results were obtained with a very efficient disinfectant called chloramine (para-toluol-sulfone-chloramide-sodium).

This would appear to be conclusive proof that we can accustom the phage to the deleterious influence of certain disinfectants. Similar results have been published by d'Herelle for the resistance of the phage to acids, but they are not quite conclusive; more exact data in the same direction were since obtained by Asheshov, Schuurmann and for some, but not all, the phage strains examined by Ordelt.

Yet the critic may still raise two objections against the assumption that these results prove the phage to have been really *accustomed* to the disinfectant.

(*a*) It may be affirmed that it is not the phage which varies, but the bacteria; indeed, we know such

variations to occur regularly in bacteria, as in all living organisms. But this contention is not very plausible; for it should be remembered that—e.g., on an agar plate covered with bacteria and showing 100 phage areas, the original implant of the plate would have been only 100 phage corpuscles, but 25,000,000 bacteria. If, as we have seen, differences are found in the behaviour of the individual phage areas, it is surely far-fetched to attribute them to plus- or minus-variation of the bacteria, whose enormous number must tend to equalise such effects. They *must* be attributed to variation in the phage corpuscles.

(*b*) But even assuming this to be true, there arises the further objection that in the filtrate originally employed there might have been present two or more different *species* of phage; perhaps in our endeavour to accustom the phage to an antiseptic we have only weeded out the less resistant kind and retained the highly resistant ones. Bail has indeed shown that in a freshly isolated "raw" phage filtrate there may often be present two or more substrains; they can sometimes be distinguished by the size of the phage areas on agar; by repeated subcultures from one kind of area he succeeded in separating a number of such substrains. In order to invalidate this last objection, I carried out the same experiments with one of these "ultra-pure" substrains, kindly sent me by Prof. Bail, the strain called "Lauda G," which forms characteristic very large areas.

With this pure-line strain virtually the same results were obtained: great variation in the resistance of different passage substrains to chloramine, and after about 30 passages a definite increase of each of them, and therefore also of the average resistance of the passage strains to this antiseptic, as compared with the original strain untreated with chloramine. It is true, after the thirty-eighth passage the resistance of the passage strain again became equal to that of the original strain, but such occurrences are known to occur with bacteria and higher organisms also.

Therefore I believe to have proved the variability of different kinds of the bacteriophage, and the possibility of accustoming them to the noxious effects of certain disinfectants. So far as I can see, these facts allow of no more plausible explanation than that the bacteriophage is a living organism.

WERTHEIM'S HYSTERECTOMY FOR CARCINOMA OF THE CERVIX.

THE RESULTS OF SEVENTY-SIX HYSTERECTOMIES PERFORMED FIVE OR MORE YEARS AGO.

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EVERY new treatment for cancer is hailed with delight and great results claimed for it. Naturally, when these great expectations fail to be realised reaction sets in, but later, if there is any benefit at all obtained from the treatment, the pendulum again swings a little forward and finally, after several years of trial, we are able to assess its true value.

For over 20 years Wertheim's hysterectomy has been performed in this country, and the time has now arrived when we should be able to assess its value and decide whether it has stood the test of time. When it was first introduced it was received with a good deal of silent opposition on the part of many of the older gynæcologists, but some of the younger members took it up enthusiastically though, in a little time, the inherent difficulties of the operation cooled a good deal of the enthusiasm. The difficulties in those days seemed very much greater than they are to-day. Each operation presented some fresh obstacle. What had been found in the last case we were prepared t meet again, and we took precautions against it, bu inevitably something fresh appeared and eac operation became an adventurous voyage in a uncharted ocean. It was at this stage Comyn Berkeley and Victor Bonney did so much to rescu the operation when they published a long series cases with a mortality no more than was justifie by the great benefit conferred. Moreover, by workin together they obtained a large number of cases fo operation and so were able to chart most of th common difficulties which were encountered. Oth gynæcologists who were doing the operation flocke to see their perfected technique, and soon the operatio was being more generally performed on more or le identical lines. The younger gynæcologists who hav commenced to do the operation within the last te years cannot realise the enormous difficulties whic confronted the earlier operators, so many of the difficulties having been removed as the operation ha become standardised.

These earlier recorded benefits due to the operatio have now been supplemented by a further paper b Mr. Victor Bonney,[1] who gives details of all the cas upon whom he has operated more than five years ag 214 altogether. The total mortality is about 15 p cent., but in his later series he has reduced this t 12 per cent. Of the total number operated upo 85, which is just below 40 per cent., were alive an well at the end of five years. These are brilliant results, and must go a long way definitely to establis the operation as the treatment most likely to hold ou a chance of permanent cure. The criticism on th paper is likely to be: "These are the results in th hands of one brilliant operator, and it is not likel they will be equalled if the operation becomes mor generally performed." It is, therefore, the duty every gynæcologist who has a considerable series cases performed more than five years ago to publis his figures with the same honesty as Mr. Victo Bonney, and without any excuse for those who hav died of intercurrent disease or whose future histor has not been followed, and it is most essential tha every operator should keep a complete follow up all his cases. It is for this reason that I now publis the results of the cases upon whom I have performe this operation more than five years ago, 76 altogethe The figures of these 76 cases are as follows:—

Deaths due to operation	16 (21	per cent.)
Recurrences	25 (33	„)
Deaths from other causes	2 (2·6	„)
Untraced	3 (3·8	„)
Alive and well five years after the operation	30 (39·5	„

Operability.

This is one of the least important figures as th percentage must vary very considerably with th type of work which the operator is doing. The youn gynæcologist in charge of a large out-patient depar ment will naturally see more of the very advance inoperable cases than will the more senior man charge of a large number of beds with no out-patie department. Nevertheless, although it is not a important figure and must vary considerably wit different operators, still it does give some indicatio of the type of case he is operating upon, and w divide surgeons roughly into two classes, the one wh operates upon every case where there is a reasonab chance of removing the growth, and the others wh merely choose a very small number of early cases f the operation. In a previous paper[2] I gave m operability rate as 26·8 per cent., but this figure w based on a record of only six months' work. Sin that time I have kept a very careful record of eve case of carcinoma of the cervix which I have see and the number I have operated upon, and I find the last five years my operability rate works out 53 per cent. This figure is less than the rate quot by Victor Bonney, 63 per cent., but is sufficient near to show that I am operating upon the same cla

of case, and give every patient with this disease a chance of the operation if it is at all practicable.

Operation Mortality.

In this series my operation mortality is almost the same as Bonney's for his first 100 cases, though in his later series he has improved this to 12 per cent. At first sight this seems a dreadfully high figure, and it is one which could be easily improved if the cases were carefully chosen, but, in a disease of this nature where, up to now, no other form of treatment holds out anything like such a good chance of cure, it is the duty of the surgeon who does the operation frequently to give each of these otherwise condemned patients a chance, and he should not refuse to operate upon any with a reasonable chance merely because he thinks it will worsen his own statistics. At the present state of our knowledge, apart from this method of treatment, patients with carcinoma of the cervix have very little chance of cure, and if we save only a small percentage of these very advanced cases the mortality is fully justified, as many of them which do recur have a considerable interval of freedom of symptoms and those who die would otherwise have only a short and miserable existence. It should be emphasised that this operation is the most difficult one which the gynæcological surgeon is called upon to perform, and should only be practised by those who are constantly operating and have the opportunity of performing this operation frequently and so perfecting their technique. It is not an operation for a man whose operative work is only part of his daily life, and who is likely only to perform this operation a very few times. The chief cause of death is shock, and the wider the operation is taken the greater the mortality. After shock I find sepsis of the rawed pelvic tissue, and sepsis of the urinary tract, the most common causes of death.

Sepsis of the urinary tract is very difficult to combat. After such a severe operation patients frequently have retention of urine with the necessity of catheterisation, and no matter how carefully this is done there is the liability of bladder infection, as this organ is less resistant after so much damage to its nerve-supply. In a few cases the septic infection tracks up to the kidneys. For some time I have given my patients urotropine, gr. 40, for a few nights before and after operation, but whether this is a real benefit or not it is difficult to determine.

Occasionally we see a case where the growth is obviously very early and the uterus freely movable, but more often the advanced case where the growth has extended on to the bladder wall and the uterus is fixed in the pelvis, and between these is a large number of cases where it is doubtful whether the whole growth can be removed or not. These are cases in which the operation should be given a trial, though necessarily a number will be found so advanced that the abdomen will have to be closed without the operation being completed. In my experience the duration of the symptoms is of little value in determining whether the case will be operable or not. Some with a very short history prove to have a very advanced, inoperable growth. Pain is a most important symptom, and I doubt whether it is ever possible completely to eradicate the growth when once this symptom is established. The cauliflower type of growth which forms a big mass in the vagina is much more favourable than the type which shows very little growth on the cervix but extends upwards in the upper cervical tissues. A growth on to the bladder I consider quite inoperable, and never perform an extensive operation which requires removal of the bladder wall. The thickness of the patient's abdominal wall is another important factor in determining operability. The old teaching was that malignant disease of the cervix occurs in poor, worn-out, thin, anæmic patients, but in my experience some of the fattest patients I have been asked to operate upon have suffered from this disease. A fat abdominal wall, with masses of fat in the bladder wall and pelvis, makes the operation extremely difficult, and I have more frequently abandoned the operation for this reason than because of the extent of the actual growth.

Operation.

The operation, nowadays, is more or less standardised, but I think we should insist upon the term "Wertheim's hysterectomy" being applied only to those cases in which the ureters have been dissected out and the vagina clamped over the growth before removal. There are still certain operators who say they are doing Wertheim's operation, where, in reality, they are only doing a simple panhysterectomy, and it is not fair to compare their results with those who are doing a complete Wertheim's hysterectomy.

Glands.

Many operators lay great stress upon the prevalence of malignant infection of the glands. In my experience the glands are involved very much less frequently than one would expect. Even where the glands are enlarged microscopical investigation shows it is frequently due to septic infection, not to malignant deposits. In his series of 214 cases Bonney found the large number of 43·4 per cent. to have malignant glands, and by carefully compiled tables he shows that this group have a much greater primary mortality and a much higher percentage of recurrence than those without glandular involvement.

Recurrence.

This is the chief test of the operation, and in my experience the majority of recurrences occur in the first or second year. Of all my cases which have suffered from recurrence 81 per cent. have done so in the first two years. If at the end of one year after the operation the patient is perfectly fit and well, putting on weight, and has a good colour, I consider she has a good chance of remaining perfectly free. If, on the other hand, she is rather seedy, with a bad colour, I feel that recurrence will probably take place during the next 12 months, but we must remember that no period of freedom from recurrence warrants us to use the word cure. For some time, five years has been taken as the period which some operators consider as justifying the use of the term, but only last month I heard of two of my patients, one of whom has been perfectly well for nine years, and the other for six years, and now both have recurrence.

Of the cases upon which I performed the operation more than five years ago, there are 76. Of these, 16 died of the operation, 25 have died from or are suffering from recurrence, two have died from other causes (one an operation upon the ureter two years later, and one from tuberculous meningitis four years later), and three cannot be traced. This leaves 30 alive and well at the end of five years, being 39·5 per cent. of those operated upon.

Of cases operated upon more than seven years ago, I have 50 with the following results:—

Immediate death	11
Recurrence	18
Death from tubercle	1
Not traced	4
Alive and well after seven years	16 (32 per cent.)

It would be a simple matter to improve this figure by deducting cases which died from intercurrent disease, cases which cannot be traced, &c., but as the ground for decision whether the operation is justified or not I think the only figures which should be allowed are the total number of cases upon which the operation was completed, and the number of cases which are alive and well after five years. In my case I performed the operation in 76 patients, and of these 30 are alive and well, and so, although I am appalled with the dreadful mortality, I feel compelled to proceed with this operation until some other form of treatment is

definitely proved to be capable of giving a freedom of recurrence over five years to 40 per cent. of the patients to whom such treatment is applied.

Radium.

The chief alternative treatment to operation for carcinoma of the cervix is radium, about which a large literature has sprung up. The application of radium is fairly straightforward, and does not require anything like the technical skill that is necessary for a Wertheim's hysterectomy, and so the difference in results due to this personal factor should be eliminated; in fact the technique employed at the "Radiumhemmet" in Stockholm, from which some of the best results have been published, is one of the simplest. It is therefore very surprising to find such enormous differences in the results published by the various observers. Heyman,[3] from Stockholm, claims 20·29 per cent. of all his cases to be alive after five years and 40·5 per cent. of his operable cases, while Gray Ward [4 5] and Farrar claim 23·6 per cent. of all cases and 52·9 per cent. of the operable cases to be alive after five years.

If these figures can be equalled in other countries then Wertheim's hysterectomy should be abandoned. It is very difficult to criticise figures from other countries but, whilst these observers are absolutely reliable and their figures above suspicion, there may be other factors which we, in other countries, cannot assess. For practical purposes we must remember we are treating cases of carcinoma of the cervix in our own country. We have been using radium extensively for many years, and until our own radiologists can show figures comparable to these we must continue to perform Wertheim's hysterectomy. In Manchester we have had radium used in these cases for 13 years, but so far no extensive figures have been published; and in assessing its value I have to rely upon my own impression of the results on my own cases. Naturally, most of the cases referred to the radiologist are advanced ones, but occasionally an early operable case is sent to them because the patient is suffering from some other condition which precludes operation, but up to the present time I have not found any of these patients free from recurrence at the end of five years.

Some years ago I was very interested in cases which had been made operable by radium, and in 1919 read a paper[6] before the Obstetrical Section of the Royal Society of Medicine along with Dr. A. Burrows, based upon 11 cases. So impressed was I with the effect of radium that, from that time, I made a general rule of having each case of carcinoma of the cervix treated with radium before the operation was performed. I did this after careful consultation and discussion with Dr. Burrows, the radiologist, who felt that radium would act as well before the operation as after, and would give very much less likelihood of fistula and other pelvic troubles.

Of the patients upon whom I operated more than one year ago I find 68 were treated with radium previous to the operation and in 59 radium was not used at all. Of the 68 cases treated with radium, 28 are alive and well to-day—that is 41 per cent.; whereas of the 59 not treated by radium only 18 are alive—that is 32 per cent.

Now that we know more about the action of radium and see how localised it really is, it is difficult to understand how the rays will affect the tissues beyond the line of operation, and lately I have tended to discard the use of radium, but now that I have taken out these figures and find such a considerable difference in the results I feel that probably radium has been of some benefit and it should be given an extended trial to our operation cases.

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THE BLOOD PRESSURE IN PSYCHONEUROSIS.

AN INVESTIGATION OF 71 CASES.

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SINCE the days when John Hunter said that his life was in the hands of any rascal who chose to annoy him, the influence of the emotions upon the circulatory system has been constantly—though somewhat vaguely—recognised. Whereas knowledge of the mechanical factors concerned in blood pressure has reached quite formidable proportions, the reaction of that mechanism to stimuli of psychical origin has received a comparatively small degree of exact observation. So far as the psychoses and psychoneuroses are concerned, definite findings have been established, the consensus of opinion being as follows. In the psychoses, according to Sir Maurice Craig's investigation,[1] the blood pressure is variable, being higher than the normal in cases of melancholia and the depressed types of manic-depressive insanity, but subnormal in states of mania and agitated melancholia. In the psychoneuroses, neurasthenias, psychasthenias, Craig, in common with other observers, has found the blood pressure to be low. Halls Dally [2] has laid stress upon the rise of pressure occurring in a group of cases in which there is a marked degree of anxiety neurosis, or history of prolonged mental strain. He also refers to the temporary pressor influence exerted by such emotions as fear, anger, or states of worry and great mental activity. The latter aspect of the subject has been investigated in detail by Cannon,[3] to whose work further reference will be made.

Aims and Definitions.

In the present investigation an attempt has been made, first, to compare results with the above findings; second, to examine in greater detail the cases of neurosis in which an abnormally high blood pressure occurs; third, to observe the result of treatment in such cases; and fourth, to investigate the temporary response of the circulatory system to states of increased emotional tone. The cases were not selected, but represent a series to which the same methods of investigation, precautions, and technique were applied. The term neurasthenia has not been taken to include psychasthenia, but rather to denote that state in which the symptomatology is physical rather than mental, associated with a host of subjective symptoms both general, such as the asthenia, and local, in which the symptoms are referred to any or all of the systems of the body. Psychasthenia, on the other hand, has been taken to include that type of case wherein no physical symptoms are evident, but where the complaint is of an asthenic mental state—defective memory, lack of concentrating power, phobias, and obsessions — the reasoning power remaining unimpaired. The two types are, of course, commonly present in the same patient, but in the early stages often appear as distinct entities.

Method, Technique, and Precautions.

To eliminate organic ætiological factors the following measures have been adopted in each case. Thorough physical examination, neurological, cardiovascular, genito-urinary, &c., was undertaken. Investigation as to the patient's life and habits, age with reference to menopause, and as to the possible existence of some septic focus, anæmia, &c. In the majority of cases, too, the patients had been submitted to thorough examination before coming under investigation. Forty-one of the cases were males, and 30 females. With the exception of one patient aged 63, all the ages were between 20 and 60 years.

The technique and method observed were as follows. The instrument used was of the Martin type with a

ıercurial manometer, and the readings were taken y the auditory method and checked digitally. The ulse-rate, the systolic and diastolic pressures were ecorded on each occasion. Each reading was taken fter the patient had rested for at least 10 minutes in comfortable chair, and every possible psychical isturbance had been brought to an irreducible ıinimum. In cases where the pressure was found to e high upon first reading, it was recorded again) minutes later, the emotional response—a term hich will be further explained—being observed and xcluded. The accuracy of the latter reading as a ecord of the patient's blood pressure was confirmed y readings taken a few minutes later. Readings ere taken upon subsequent occasions, always at ıe same time of day.

The precautions taken have been practically ıose advocated by Halls Dally; his formula, too, has een used in working out a scale of normal blood ressures, a latitude of 10 mm. Hg above and below ıis scale of pressures being allowed in order to ve generous interpretation to the expression normal limits." According to these formulæ the andard systolic pressure between the ages of 20 ıd 60 equals 120 + 1/5 of the age. At the age 60 ıe standard systolic pressure is taken as 135, and r each year above this, up to and including age 80, ld 1 mm. Hg. For diastolic pressure 80 mm. Hg taken as standard for 20 years of age, adding mm. Hg for each 5 years up to 60, and 2 mm. Hg r each 5 years between 60 and 80.

lood Pressure in Neurasthenia and Psychasthenia.

To turn to the actual findings, the results of vestigation on the cases of neurasthenia and sychasthenia confirm the findings of other observers the extent illustrated in Diagram I. (Table I.). will be seen here that in the majority of cases 4·9 per cent.) the systolic blood pressure readings are und to be below normal, some of them to a marked egree. It is interesting to note that a number of ıe patients who exhibit pronounced hypotonus are ıose who show the symptoms and signs of circulatory stability. Such a patient will complain that some ight shock, excitement, self-consciousness, or other notional stimulus is followed by "thudding" of s heart or carotid vessels, or by the consciousness of s pulse-beat in limbs, ears, or head. With these is sociated a feeling of warmth and many other bjective sensations. On examination the skin is und to flush readily and to exhibit dermatographia, .e heart sounds are abnormally loud and clear, the pulse is full and bounding, almost of a collapsing quality, though not necessarily increased in rate. Obvious pulsation is observed in the larger arteries such as the abdominal aorta and the carotids. The condition is well demonstrated in several cases of the present series, as, for example :—

A. M., male, aged 30. The condition dated from 1916, when the patient was buried by a shell explosion and suffered from a condition described as "shell-shock," on account of which he was invalided out of the army. He had been able to work for short periods only since that time. When first seen his main complaints were of exhaustion, lassitude, sweating, palpitation, choking sensations, restlessness, and insomnia. The slightest mental excitement or activity, such as might occur from conversation, reading, or being examined, served to exaggerate enormously the cardiovascular activity, and to produce the symptoms

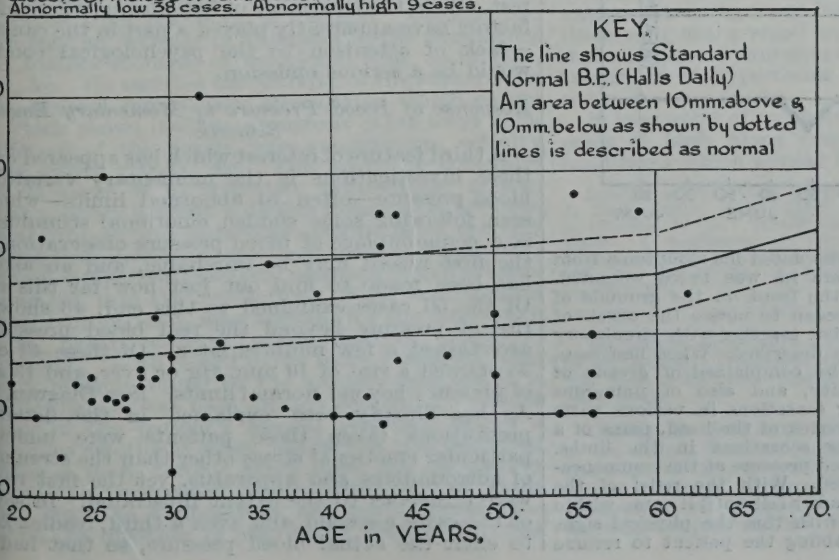
TABLE I.—(*See Diagram I.*) *B.P. in Neurasthenia and Psychasthenia.*

	No.	Age.	Sex.	Diagnosis.	B.P. S.	B.P. D.	P.
Abnormally high	5	39	M.	P.	130	80	60
	9	32	M.	N. & P.	180	80	82
	11	26	M.	N. & P.	160	100	80
	12	22	M.	P.	145	95	72
	14	59	F.	N. & P.	150	110	100
	41	44	F.	P.	150	90	104
	46	43	F.	P.	142	90	66
	47	36	F.	P.	138	—	72
	67	55	M.	N. & P.	155	90	78
	1	30	M.	N.	86	55	70
	2	29	M.	P.	125	88	78
	3	26	M.	P. & N.	104	60	66
	4	37	M.	N.	102	70	90
	6	25	M.	P. & N.	104	68	72
	10	63	F.	N.	130	70	80
	13	24	F.	N.	108	82	72
	15	56	M.	N. & P.	110	60	72
	21	20	M.	N.	108	65	60
	22	54	M.	N. & P.	100	60	60
	23	50	F.	N. & P.	125	90	78
	26	39	M.	P.	105	70	72
	27	30	M.	P.	115	85	72
	28	28	F.	N.	115	70	84
	30	56	F.	P.	120	70	84
	32	28	M.	P.	110	60	68
	33	56	M.	N.	100	80	80
	34	33	F.	N.	110	190	72
	37	43	F.	N.	98	65	90
	38	27	F.	N. & P.	105	75	88
	39	28	F.	N.	108	80	84
	42	26	M.	N. & P.	105	70	60
	43	33	F.	N.	118	80	70
	45	27	M.	N.	102	70	64
	51	44	M.	N.	115	85	72
	52	57	F.	N.	105	84	72
	53	35	M.	N.	105	83	72
	54	29	F.	N. & P.	110	88	50
	55	25	F.	N. & P.	110	—	—
	56	47	F.	P.	115	82	72
	57	41	F.	P.	100	70	72
	58	42	F.	P.	105	72	72
	59	23	M.	N.	90	70	60
	60	46	M.	N.	100	70	56
	62	56	F.	N.	105	75	74
	64	30	F.	N.	120	90	80
	65	28	M.	N.	110	—	120
	66	32	M.	N.	100	73	90
	68	50	F.	N. & P.	110	60	78
	69	22	M.	N.	100	74	60
	70	40	M.	N. & P.	100	58	72
	71	30	M.	N. & P.	112	58	72

Cases, 53. Males, 30. Females, 23.
Above normal = 10 = 15·1 %. Below normal = 43 = 84·9 %.

DIAGRAM I (See Table I)

Blood Pressure in Neurasthenia and Psychasthenia.
Cases, 53. Males 30. Females 23. Within "normal limits" 6 cases.
Abnormally low 38 cases. Abnormally high 9 cases.

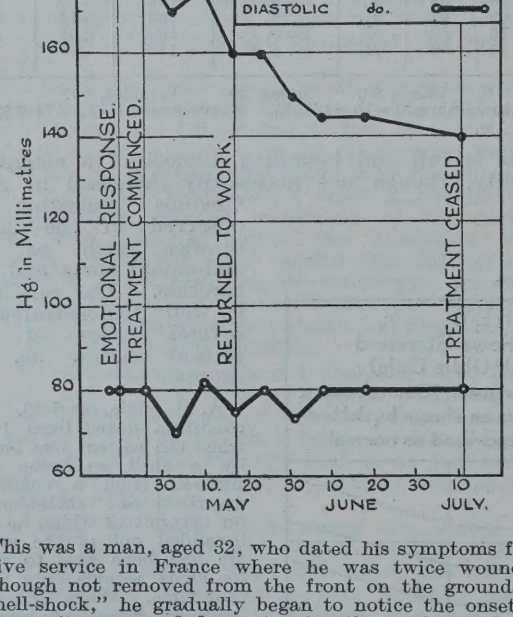


subjective sensations, and signs already described. Physical examination discovered no organic lesion, the response to physical effort was good, the pulse-rate during the occurrence of symptoms was not accelerated, but remained at 70 per minute. The blood pressure in this case was 86/55.

High Blood Pressure in Anxiety Neurosis.

Reference has already been made to a definite group of cases of psychasthenias and anxiety neuroses in which an abnormally high blood pressure occurs. There are 13 such cases in the present series. (See Table II.) This condition is usually associated with anxiety neurosis in some form, and is one in which some worry, fear, or distressing idea continually dominates the patient's thoughts and renders him in a state of continued anxiety and suppressed excitement. The actual cause for anxiety may have no foundation in fact but recurs again and again to the patient's mind because of its painful character. Such an idea gradually absorbs more and more of his attention until a vicious circle is established. The mental preoccupation not only leads to lack of concentrating power and inability for work, but itself causes exhaustion far more quickly than normal mental activity. Mental depression or agitation follows, possibly complicated by insomnia, until at length the patient begins to complain of physical symptoms such as those seen in neurasthenia. On the other hand, the anxiety state may be founded on fact but be out of all proportion to the original cause. A minor business worry may be magnified into impending bankruptcy, or a chance remark into an intended insult.

It is interesting to note too, how, if the condition is treated and the mental state becomes calmer and more normal, the blood pressure falls to within normal limits as in Case 9. Diagram IIA. (Table II.)



This was a man, aged 32, who dated his symptoms from active service in France where he was twice wounded. Although not removed from the front on the grounds of "shell-shock," he gradually began to notice the onset of self-consciousness and depression together with circulatory signs and symptoms as already described. When first seen, eight years after the onset, he complained of dreads of suicide, homicide, and insanity, and also of numerous subjective sensations, tingling sensations in various parts of the body, pressure on the vertex of the head, pains of a wandering character, shooting sensations in the limbs. As seen in the diagram the blood pressure at the commencement of treatment was 180/80. With the relief of the mental condition the figure steadily fell until it came within normal limits. Concurrently with this the physical signs and symptoms cleared up enabling the patient to resume work as a gardener. Six months later his doctor reported that he remained at work and in normal health.

As illustrated, the blood pressure in each case approximated to the normal concurrently with the return to a more peaceful state of mind.

Sir Humphry Rolleston [4] has indicated the importance of ascertaining a possible psychological

TABLE II.—*Effect of Treatment on B.P. in the Anxiety Neuroses.*

Case No.	Age.	Sex.	B.P. Before treatment.		B.P. After treatment.		Syst. Diff.
9	32	M.	180/80	82	138/75	72	42
11	26	M.	160/100	80	132/85	66	28
12	22	M.	145/95	72	118/64	72	27
14	59	F.	180/110	100	145/100	100	35
16	44	M.	150/105	88	N.R.	—	—
17	26	M.	145/100	78	126/82	66	49
41	44	F.	150/90	104	138/90	93	12
46	43	F.	148/78	72	120/70	70	28
47	36	F.	148/82	84	120/75	66	28
49	37	M.	160/120	72	118/80	60	42
61	43	M.	150/90	70	125/75	72	25
63	30	F.	145/100	72	122/95	76	23
67	55	M.	170/90	78	125/90	72	45

N.R. = Not recorded.

The "Before treatment" readings were ascertained by taking the blood pressure several times on different days in order to eliminate emotional variations.

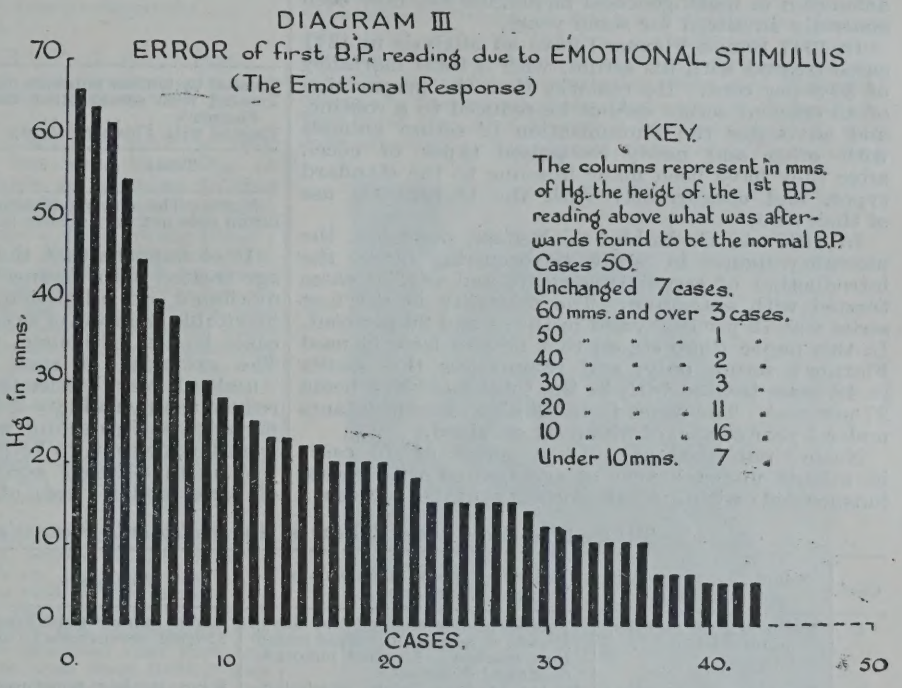
factor in cases of high blood pressure, and the conclusion pointed by the study of these cases—namely the apparent association between the blood pressure and increased emotional tone—may conceivably throw some light upon the ætiology of hypertonus and on those cardiovascular conditions, in the causation of which mental strain has acted as a contributory factor. According to Halls Dally, states of "continued worry and anxiety have a strong action in promoting vasoconstriction over long periods of time, tending ultimately to permanent thickening of the vessel walls." It would appear therefore, that psychical factors are worthy of consideration in the ætiology and treatment of such conditions. From the therapeutic point of view an attempt has been made to show the value of combating the mental condition in the type of case described above. Ziegler and Levine [5] have recorded an increase in the basal metabolic rate resulting from emocional stimuli, an increase which was accentuated in psychoneurotics. They also noted the changes in the colour of the skin, the fine tremors, differences in the rate and amplitude of respiration, &c. They used these observations to show that lying still in bed was no very accurate criterion even of physical rest. So in the treatment of hypertonus where mental factors have apparently played a part in the causation —lack of attention to the psychological condition would be a serious omission.

Response of Blood Pressure to Momentary Emotional Stimuli.

A third feature of interest which has appeared during these investigations is the momentary variation of blood pressure—often to abnormal limits—which is seen following some sudden emotional stimulus. It is a commonplace of blood pressure observation that the first record may be unreliable, and an attempt has been made to find out just how far this is so. Of the 50 cases examined to this end, 43 showed a rise of pressure beyond the real blood pressure as ascertained a few minutes later. Of these 43 cases 35 showed a rise of 10 mm. Hg or over, and 13 a rise of pressure beyond normal limits. (See Diagram III. As has already been explained in the details of precautions taken these patients were under no particular emotional stress other than the strangeness of surroundings and apparatus, yet the first record were erroneous to the extent illustrated. In several of the cases a second, and even a third, reading failed to elicit the actual blood pressure, so that had no

reat care been taken the observer would have been ridely misled as to the exact state of tonus.

Without going into more wearisome analysis of the gures in all the cases, the unreliability of blood ressure readings in neurotic or merely highly strung emperamental patients is clearly demonstrated. single record of blood pressure taken during the hysical examination of such a patient is scarcely kely to prove accurate, for, though to all intents and urposes he may be at rest, his state of mental xcitement, however slight n degree, may cause ufficient circulatory hange to produce inaccuracy. The results also how the cardiovascular ystem as a sensitive indiator responding to mental rocesses which result om environmental timuli, of mild degree, ccurring in the absence f physical activity. The ractical point arising om these temporary bnormalities of blood ressure is in cases where reat stress is laid upon he record of blood ressure. In recent years, ossibly to a greater xtent in America than n this country, the estiation of blood pressure as played an increasing art in medical examinaon, especially that for fe assurance, and it is onceivable that by temorarily raising the blood ressure the emotional actor might contribute o a pessimistic estimate f the patient's condition nless elaborate precautions were taken. Again, consideration of the emotional variations in lood pressure may assist the physician to regard arily records of treatment by preparations which re credited with lowering the blood pressures ome 10 or 20 mm. Hg. This emotional response ould appear to illustrate the way in which igh pressures of the more persistent type, like hose already described, occur, and which fall, nly with relief of the emotional stress. Turning o explanation of these phenomena—the sudden motional variation and the high pressure of longer uration seen in anxiety neuroses—much help may e derived from the work of Cannon. Cannon has hown that an increase of adrenalin in the circulating lood follows increase of emotional tone, as in fear, nger, &c. He ascribes the activity of the suprarenals o the general sympathetic stimulation which occurs nd which shows itself in numerous other ways such s dilation of the pupils, vaso-constriction, activity f the sweat glands, &c. The effect of adrenalin tself, however, is to stimulate sympathetic action, o that possibly thereby a double influence is brought o bear—direct and immediate sympathetic activity esulting from increased emotional tone, and indirectly roduced sympathetic activity resulting from discharge f adrenalin into the circulation. Some combination f these factors, then, may account for the temporary ise in blood pressure which follows emotional timulation. With regard to the more persistent form f high pressure found in the anxiety neurosis, it is ossible that, as has been already hinted, the vicious ircling of the patient's mental processes causes a ontinuous emotional stress, the factors just described xerting a more chronic effect upon the circulatory ystem—the " continued vaso-constriction " of Halls Dally. Such an explanation, too, might throw some ight on the question of high blood pressure in cases where, without the occurrence of any neurosis or cardiovascular disease, a life of continued mental stress and anxiety appears the sole ætiological factor.



Summary and Conclusions.

To summarise the conclusions pointed by this investigation. (*a*) As was found by previous observers, the blood pressure in neurasthenia and psychasthenia is abnormally low. (*b*) In cases of prolonged mental strain or anxiety neurosis, and in a small group of psychasthenics, the blood pressure may be abnormally and persistently high. (*c*) The blood pressure where abnormally high falls to within normal limits as the mental condition yields to treatment. (*d*) The initial blood pressure readings in highly strung or neurotic patients may appear to be higher than is actually the case even to the point of considerable abnormality. The sudden rise of pressure is excited by some extraneous stimulus to the emotions, thence directly through the sympathetic system, or indirectly by sympathetic system and adrenal glands, to the vaso-motor system. It is possible that continued emotional stress causing frequent or continuous vaso-constriction may lead ultimately to permanent thickening of the vessel walls. (*e*) The patient's mental state plays an important part in the ætiology and treatment of hypertonus, which occurs in functional cases.

It is worthy of consideration in those more chronic cases of high blood pressure and in cardiovascular conditions which appear to result from mental strain.

References.—1. Craig, Maurice: THE LANCET, 1898, i., 1742. 2. Halls Dally, J. F.: High Blood Pressure, pp. 62, 97, 104. 3. Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear, and Rage. 4. Rolleston, H. D.: THE LANCET, 1926, ii., 1203. 5. Levine, B. S.: Journal Laborat. and Clinical Med., St. Louis, viii., 775 and 73–77. 6. Craig: Psychological Medicine, 1917, pp. 262, 303.

QUEEN'S HOSPITAL, BIRMINGHAM.—The extension to the Queen's Hospital, consisting of a building containing 120 beds with three operating theatres, will be opened on Nov. 16th.

CRISIS AT SWANSEA HOSPITAL.—Swansea Hospital is in a serious financial position, having very nearly reached the limit of its overdraft of £60,000 at the bank. Unless means are found of increasing its revenue there will be no alternative but to close portions of the hospital and bring monthly expenditure into line with monthly revenue.

MENINGOCOCCAL MENINGITIS IN INFANTS AND CHILDREN.

TREATED BY FLEXNER'S SERUM.

BY G. KENNEDY THORNTON, M.B. CAMB.,
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THE value of intrathecal infections of an efficient antiserum in meningococcal meningitis has now been generally admitted for some years.

In 1917 Simon Flexner [1] gave an analysis in 1211 cases treated with his serum, with a total mortality of 30·8 per cent. He remarks that the preparation of an efficient serum cannot be reduced to a routine, and advocates the immunisation of serum animals with other and newly recognised types of cocci, after they have been made immune to the standard types, and concurrently with the therapeutic use of their sera.

In 1917 A. G. Robb,[2] of Belfast, published the mortality figures in 300 cases occurring before the introduction of serum treatment, and of 270 cases treated with antiserum. The mortality in the first series was 72 per cent., and in the second 26 per cent. In this paper Robb stated that he had latterly used Flexner's serum only, and summarises the results in 48 cases treated with it, the total mortality being 27 per cent. The series includes nine cases in infants under 1 year of age, of whom six survived.

Neale [3] published in 1918 a series of 76 cases in infants under 1 year of age treated with serum (unspecified) with a total mortality of 50 per cent., and quotes Flexner's estimation of the pre-serum mortality, under this age, at over 90 per cent.

During the war good results were obtained by the use of polyvalent sera prepared in this country. Helen Mackay [4] published in 1920 a series of eight consecutive cases, all in children under 8 years of age, treated between September, 1916, and July, 1917, with serum from the Lister Institute. All of these survived.

Reference to the records of the Queen's Hospital for Children from 1917 to the present time, where sera produced in this country were in general use till July, 1925, shows that the results were, on the whole, disappointing. The number treated since that date with Flexner's serum is small, but the results of treatment, as far as the immediate life-saving is concerned, have been such as to suggest that Flexner's serum is worthy of a more extensive trial in this country, especially in the case of young infants.

TABLE I.

A = Analysis of 32 cases occurring in children under 14 years of age, 1917–27.
B = Twenty-one cases included in Series A, under 1 year of age.

—	A			B		
	Total.	Recovered.	Died.	Total.	Recovered.	Died.
Treated by lumbar puncture only	5	1	4	5	1	4
Treated with serum other than Flexner's	17	5	12	11	1	10
Treated with Flexner's serum	10	7	3	5	4	1
Total	32	14	18	21	6	15

NOTE.—The average duration of disease before treatment was begun does not vary greatly in the three groups.

It so happens that the five cases under 1 year of age treated with Flexner's serum do not include any moribund on admission. In a larger series the inevitable inclusion of a certain percentage of moribund cases would, of course, increase the mortality-rate. The exclusion of such moribund cases from the "under 1 year" series treated with other sera would reduce the mortality—if it be permissible to speak of percentages in dealing with such a small number—from 90 per cent. to 75 per cent.

A more detailed account is given in Table II of cases under 1 year of age, treated with Flexner's

TABLE II.—*Cases under 1 Year of Age treated with Flexner's Serum.*

Case.	Names, age, and date of admission.	Type of onset, and state on admission.	Treatment.	Result.
1	Doris K., 3 months, admitted 26/1/26.	Feverish and fretful for four days. Had fit on admission. Head retraction marked. Lumbar puncture confirmed diagnosis.	Seven lumbar punctures; 35 c.cm. serum used in all.	Temp. level 17 days from admission. Appeared normal on discharge, 24/2/26.
2	Irene G., 4 months; admitted 31/1/26.	Ill for 14 days before admission. Had two fits. Marked head retraction. Lumbar puncture confirmed diagnosis.	Four lumbar punctures; 50 c.cm. serum used in all.	Temp. level 16 days from admission. Appeared normal on discharge, 25/2/26.
3	Edward O., 10 months, admitted 29/9/26.	Onset of illness four days before admission, with vomiting. Fontanelle bulging. Lumbar puncture gave turbid fluid containing polymorphs but no organism.	Five lumbar punctures; 50 c.cm. serum used in all.	Temp. normal 10 days from admission and meningeal signs disappeared. Convalescence complicated by multiple joint effusions. Good recovery on discharge 29/1/27.
4	Doris M., 3 months, admitted 31/12/26.	Sudden onset with vomiting day of admission. Fontanelle bulging. Lumbar puncture gave turbid fluid containing polymorphs and Gram-positive cocci.	Four lumbar punctures; 25 c.cm. serum used in all.	Died 16 days after admission. Meningococci found in later lumbar puncture as well as Gram-positive cocci.
5	Harry T., 4 months, admitted 20/2/27.	Admitted with right basal pneumonia. Chest was clear and temperature normal on sixth day. Temperature rose again, 10/3/27, and head retraction developed. Lumbar puncture, 16/3/27, gave turbid fluid containing meningococci.	Eight lumbar punctures; 90 c.cm. serum used in all.	Temp. level three days from first administration of serum. Head retraction persisted till 24/3/27. Is now making good recovery.

In Case 3 no meningococci were found on lumbar puncture, but in view of the almost inevitably fatal results of other meningeal infections leading to polymorphonuclear reactions in the cerebro-spinal fluid, this case has been retained in the series. As against this, in Case 4, the meningococcal infection eventually proved, was complicated from the first by infection with a Gram-positive coccus as well.

The Flexner serum used at the Queen's Hospital was obtained in part from the New York City Research Laboratories, E.16th Street, New York, from which address it may be had at any time on payment. Much of that used was supplied gratis by the New York State Department of Health, Albany, N.Y., on condition of a report on cases being sent. Thanks are due to this department and also to Dr. Robb of the Purdysburn Fever Hospital, Belfast, who ha

[1] Jour. Amer. Med. Assoc., 1917, lxix., 639, 721, 817.
[2] Brit. Med. Jour., 1917, i., 478.
[3] Internat. Clinic, Philad., 1918, xxviii., Sect. 4.
[4] THE LANCET, 1920, i., 238.

n several occasions sent supplies of serum in mergency, when stocks were short. I am indebted o the physicians of the Queen's Hospital for per-ission to publish details of cases.

A CASE OF CEPHALIC TETANUS.

BY WILLIAM FLETCHER, M.D. CAMB., M.R.C.P. LOND.,
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AND
J. P. FITZPATRICK, L.R.C.P., L.R.C.S. IREL.,
MEDICAL OFFICER IN CHARGE OF THE DISTRICT HOSPITAL, KUALA LUMPUR, FEDERATED MALAY STATES.

TETANUS limited to the head and neck is very ncommon, and, unless one has some knowledge of ıe signs and symptoms which are peculiar to this ɔrm of the disease, the diagnosis is not always easy.

The subject of this report was a strong young Chinese ɔrter who had been employed in lifting bales and boxes ɔ a warehouse in Kuala Lumpur. He attributed his illness ɔ an accident which had befallen him 20 days before we ıw him in consultation. A box had fallen on to his head ıd had made a small punctured wound above the outer ıd of his right eyebrow, whence his friends had extracted vo long splinters of wood which had been driven beneath ıe skin of the temple. Ten days after the accident he ınd that he was unable to close his right eye or to open ıs mouth to its full extent. A few days later he began to cperience difficulty in swallowing, and was brought to the ɔspital by his friends with the following note: "Siew Check ıys he has flames in his throat and begs you to give him ɔme medicine to overcome this trouble. Owing to this he ıable to speak."

When we saw him on August 28th the wound on his rehead was completely healed, leaving a scar which is ıown in the photograph taken on the same day. The ce was paralysed on the same side as the wound; the ght eye could not be closed, the corner of the mouth ng down, and the naso-labial fold was obliterated. The ws were stiff and could not be separated more than half ı inch. If the patient tried to open them further they osed with a snap. Sometimes, in desperation, he put s fingers in his mouth and tried to pull it open by force. he contraction appeared to be more marked on the right de than on the left. He was excited, restless, and full terror, like a man with rabies. From time to time there as a tic-like twitching of the muscles on the left side the face, but there was no stiffness of the neck, and the ead could be turned freely. The chest and abdomen oved normally in respiration. The use of the limbs was ıimpaired; the patient could use his fingers to pick up ıall objects, and he walked quite easily. He was able to ticulate, but made us understand, by striking his throat, at it pained him to talk. He could neither cough, hawk, ɔr spit. On account of his distress the senses of taste, ıell, and hearing were not investigated. His temperature as 102° F. in the axilla and the pulse-rate was 110 to the inute.

Such was his condition when in comparative repose, but ıen he attempted to swallow the result was terrible. hile we were examining him he asked for some iced water, ıt no sooner did he put the cup to his lips than he was zed with violent spasms of the throat, jaws, and left side the face. The small amount of fluid which had entered s mouth was shot out again with a hissing sound; short arp hisses—like the exclamatory "hist" which is used attract attention—followed each other at intervals of out half a second. With each hiss the head was jerked ward by a spasm of the sternomastoids, and sometimes e hiss ended in a sharp sound like a bark. The patient ust have remained in this torture for a minute or more, ıt the spasms did not spread below the neck. He was ting on a long chair when the attack began, and during he got up and sat down on the other side.

During the night he was very restless, continually getting t of bed and walking about. From time to time the asms came on, and then he was beside himself, struggling d hitting out at anyone who went near him. He drove ay his friends, saying that he did not wish to see them. On the following morning he was very restless and much aker. The skin temperature was subnormal; the pulse-te had increased to 120. He had no peace without morphia. ıe twitching spasms on the left side of the face occurred ery second. Occasionally a spasm spread to the platysma the neck. Sometimes there was twitching of the muscles the arms. He refused to put anything in his mouth, and an attempt to feed him through a tube produced the most violent spasms. Sometimes he would bathe his parched lips with water, hanging his head over the side of the bed to prevent any drop of the fluid passing into his mouth. He became rapidly exhausted, and on the next day his pulse was imperceptible. There had been no ophthalmoplegia hitherto, but now there was external strabismus of the right eye, which was corrected whenever he focused his gaze upon a definite object. He died at noon on August 30th, about three weeks after the injury and 12 days after the appearance of the first symptoms.

Courtois-Suffit and Giroux, in their war manual on abnormal forms of tetanus,[1] divide the disease into four clinical types: (1) without paralysis, (2) with facial paralysis, (3) with oculo-motor paralysis, (4) with hypoglossal paralysis. The case described belongs to the second group, that with facial paralysis. This form was first described by Rose in 1872, who drew attention to the characteristic triad of prominent

Photograph of patient with cephalic tetanus.

signs which accompany it: (*a*) A wound in the area supplied by the cranial nerves. (*b*) Facial paralysis, generally on the same side as the wound. (*c*) Tetanic spasms of the masseters, the facial muscles, the back of the neck, the pharynx, and the œsophagus. Poan de Sapincourt named it facial tetanus, and drew particular attention to its insidious onset, its slow development, and its treacherous progress.

The point of inoculation in this form of tetanus is always a wound of the head, usually situated in the region innervated by the facial nerve and more often in the zone supplied by its superior branch. The incubation period is generally about eight days, but it may be as short as two or as long as 24. The disease begins, as a rule, with stiffness of the jaws, which is shortly followed by difficulty in speaking and in mastication. The trismus at first is unilateral and on the same side as the wound. One-sided spasmodic contractions of the facial muscles commence soon after the trismus; they usually affect the paralysed side of the face, but sometimes they may be limited to the opposite side, as they were in our patient. In the latter case one-half of the face may wear an expression of profound apathy while the spasms twist the other into a grimace of terrible fury. When the spasms spread to the pharynx and œsophagus, as in the case described, the prognosis is very grave; each attempt to swallow brings them on; sometimes the sight or even the mention of a drink will start an attack, and the condition amounts to

[1] Les formes anormales du Tétanos., M. Courtois-Suffit and R. Giroux, Paris, 1926.

a veritable hydrophobia. The muscles at the back of the neck are usually affected, and cervical opisthotonos frequently occurs during a seizure. As the disease progresses the spasms tend to spread to the rest of the body, but this did not happen in our patient's case, though it might have done so if he had lived longer.

Facial paralysis is an early symptom, but it usually appears later than the trismus. It is limited to the same side as the wound, but it may be bilateral if the injury is in the middle line. In some cases where the wound is close to the eye there may be ophthalmoplegia on the same side; occasionally this appears before there is any trismus, and diplopia may be the first sign of the disease.

The absence of fever is a peculiarity of this form of tetanus, but the temperature rises as the spasms spread. The pulse is always rapid. The prognosis is grave; 16 out of 22 cases cited by Courtois-Suffit and Giroux died before the tenth day, and one died after the disease had lasted more than two weeks.

A CASE OF
PROLONGED TACHYCARDIA, ASSOCIATED WITH CONGENITAL HEART DISEASE,
IN A CHILD FIFTEEN MONTHS OLD.

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AND
J. B. ELLISON, B. CHIR. CAMB., M.R.C.S. ENG.,
HOUSE PHYSICIAN, QUEEN'S HOSPITAL FOR CHILDREN, HACKNEY.

THE unusual features in this case are due to the fact that a ventricular rate of about 300 beats per minute was maintained without intermission for several days on end, without signs of severe cardiac failure or distress. The following is an account of the case up to the present date.

History of the Case.

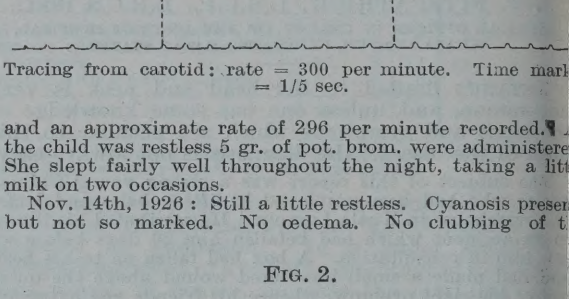
Edna R., the first child of young and healthy parents, was born in August, 1925. The confinement was easy, and nothing was noticed wrong with the baby. There is no family history of heart disease. The child was breast fed, and appeared perfectly normal for the first four months, but then commenced to have attacks which the mother referred to as "fits." These consisted of a slight and sudden rigidity of the child, lasting a few seconds only, and followed by a very brief period of doubtful loss of consciousness. No cyanosis was noted during the attacks, but definite blueness of the lips was observed if the child cried. The attacks were intermittent, intervals of several days frequently occurring, to be followed by perhaps a dozen "fits" in 24 hours. There were no after-effects.

This state of affairs continued until the afternoon of Nov. 13th, when the child had an attack. It was immediately apparent that this was more severe than any of the previous ones. Loss of consciousness was obvious and definite cyanosis occurred. The child was immediately taken to the nearest doctor, but had completely recovered by the time his house was reached. She was taken home and appeared perfectly well again for two hours, when another and yet severer attack occurred. On this occasion the child was brought up to hospital, and when first seen in the casualty department was thought to be dead. The child was of a greyish-blue colour, completely flaccid, respirations had ceased, and at first nothing could be heard on listening over the cardiac area, although a faint fluttering sensation was perceived when the hand was laid over the epigastrium. In the course of the next few seconds definite heart sounds were heard, for the first few minutes at irregular and frequently long intervals. The child yawned and respiration recommenced. About one minute later the heart beat became suddenly regular, taking on a rate of approximately 300 beats per minute. Consciousness had been completely regained.

Condition after Admission to Hospital.

After admission to the ward the child was still markedly cyanosed and rather restless, but in no great distress and making no attempt to sit up. The heart continued to beat very rapidly with a perfectly regular rhythm. On palpation the apex-beat was forcible and of maximu intensity in the fourth left intercostal space, a quarter of inch outside the nipple line. The cardiac dullness extend from the second rib above, the apex-beat on the left, and quarter of an inch beyond the right border of the sternu On auscultation the first cardiac sound alone was audib loud and explosive in character, and perfectly regula no murmurs were heard. Every beat was transmitt palpably to the wrist, but owing to the rapidity the pul was uncountable. An attempt was made by auscultati

FIG. 1.

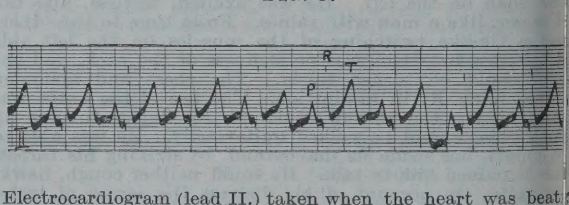


Tracing from carotid: rate = 300 per minute. Time mark = 1/5 sec.

and an approximate rate of 296 per minute recorded. the child was restless 5 gr. of pot. brom. were administere She slept fairly well throughout the night, taking a lit milk on two occasions.

Nov. 14th, 1926: Still a little restless. Cyanosis prese but not so marked. No œdema. No clubbing of t

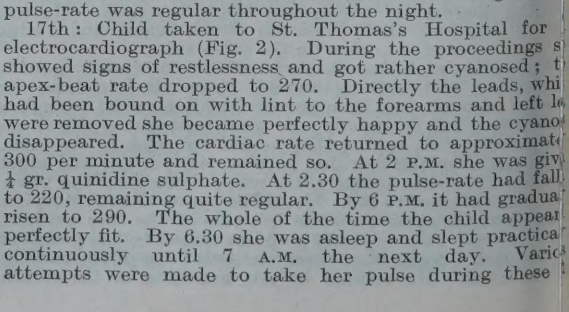
FIG. 2.



Electrocardiogram (lead II.) taken when the pulse-rate v 270 per minute. Time marker = 1/5 sec.

fingers or toes. No change whatsoever in the cardi condition. A polygraphic tracing from the apex-beat ga the rate as 300 per minute. Attempts to get veno and arterial tracings failed. The child took plenty milk throughout the day and slept quite a lot. Duri the night she was less restless and slept well. Repeat

FIG. 3.



Electrocardiogram (lead II.) taken when the heart was beat at 114 per minute. Time marker = 1/5 sec.

pulse observations proved that it remained persisten rapid.

15th: Cyanosis almost gone. Restlessness qu disappeared. No change in the cardiac condition: ape beat rate 300 per minute. Child taking milk well but refus anything else. Passed a good night. Pulse-rate stead maintained. A polygraph tracing was obtained from t carotid (Fig. 1.)

16th: No cyanosis. No restlessness. Child appeared be perfectly well and happy. Apex-beat rate 300 exact Cardiac condition precisely as above; the apex-beat s in the fourth space, a quarter of an inch outside the nip line. No further increase in the dullness to the right. T pulse-rate was regular throughout the night.

17th: Child taken to St. Thomas's Hospital for electrocardiograph (Fig. 2). During the proceedings s showed signs of restlessness and got rather cyanosed; t apex-beat rate dropped to 270. Directly the leads, whi had been bound on with lint to the forearms and left le were removed she became perfectly happy and the cyano disappeared. The cardiac rate returned to approximat 300 per minute and remained so. At 2 P.M. she was giv ¼ gr. quinidine sulphate. At 2.30 the pulse-rate had fall to 220, remaining quite regular. By 6 P.M. it had gradua risen to 290. The whole of the time the child appear perfectly fit. By 6.30 she was asleep and slept practica continuously until 7 A.M. the next day. Varic attempts were made to take her pulse during these

urs, but unfortunately no results were obtained that be relied on.

8th: Child seemed in perfect condition. Pulse-rate only and quite regular. During the course of the day s fell to approximately 100 per minute, at which rate it ained until her discharge from hospital 14 days later. Examination of the heart now revealed very altered ysical signs. The apex-beat was in the fourth left ercostal space, a quarter of an inch internal to the nipple (i.e., half an inch nearer the sternum). The right limit cardiac dullness was at the right sternal edge. On cultation the heart sounds were normal and a loud tolic murmur could be heard all over the cardiac area, ring its point of maximum intensity near to the left sternal e over the fourth intercostal cartilage. There was no ill.

The history of the rest of the stay in hospital is quite eventful. A second electrocardiograph was taken at Thomas's Hospital (Fig. 3) on Nov. 24th.

The following special examinations were performed: X ray of chest: cardiac shadow to the right a little er than normal. 2. Blood count: entirely normal. Wassermann reaction (blood), negative. Apart from the liac condition the child appeared to be perfectly normal every way. After her discharge the child was seen on eral occasions in the out-patient department and appeared be quite fit. Pulse-rate circa 100 per minute.

On Jan. 12th, 1927, the child was brought to hospital, the ther complaining of no symptoms. On examination her rt was found to be beating at the rate of 240 a minute. appeared to be perfectly fit and was in no way distressed. re was no cyanosis. She was readmitted and put on nidine sulphate 1 gr. twice a day. The tachycardia, aining fairly constantly at 240 beats per minute, tinued for three days and then commenced to slow, ing 48 hours to fall to about 100. The quinidine was tinued for five days, 10 gr. being given in all. She kept in hospital one week after her pulse had fallen to mal and was discharged perfectly fit. On this occasion re were no symptoms whatsoever.

The chief interest of the foregoing case lies in the t that the ventricles were able to respond, over a ly prolonged period, to an exceedingly rapid raventricular stimulus. A somewhat similar dition was reported by Dr. J. L. O'Flyn [1] in 1925; this case, however, no congenital heart lesion was sent. The prognosis in the present case is likely be poor. It seems probable that further attacks l occur; in addition congenital heart disease is initely present. The treatment of such a case is satisfactory. The question as to whether the ninistration of quinidine had any effect on the se-rate is very problematical.

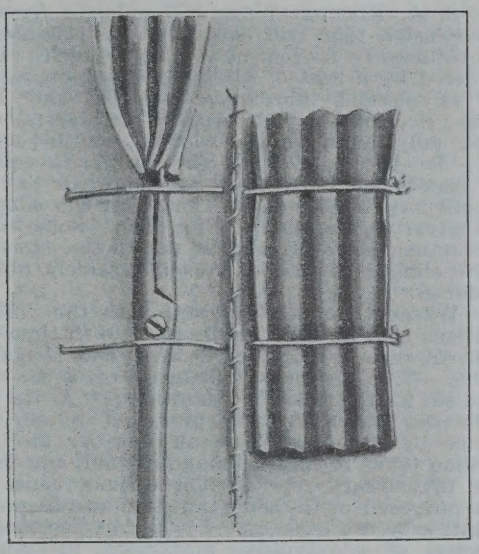
NOTE ON A METHOD OF SUTURING THE FAT ABDOMINAL WALL.

By ARTHUR EDMUNDS, C.B., M.S. LOND., F.R.C.S. ENG.,
SURGEON TO KING'S COLLEGE HOSPITAL.

In suturing an abdominal wall with a thick layer of fat, it is necessary to approximate the deeper ers of the fat, to avoid dead spaces. The large ches which are inserted, however, cut into the n, making ugly scars, and until they are removed patient is usually uncomfortable. There are ny devices in use to overcome this difficulty, such ying the sutures over gauze or a frame, or threading m through short lengths of drainage tubing. I nk the following method worthy of trial, as it is ple and effective.

The suture to employ is the eversion stitch described me [2] several years ago; this is inserted well away n the wound on one side, picks up the whole kness of the fat—or even the deeper tissues if sion stitches are required—and emerges at a responding point on the other side. It is then sed back in the reverse direction, picking up the reme edges of the incision on the way, and is loosely l. This leaves a loop of suture on either side of the wound lying flat on the skin. To prevent these loops cutting into the skin I use the corrugated rubber sheeting which Messrs. Allen and Hanbury prepared for me during the war.[3] Most instrument makers sell it now. Two pieces of this are cut, as wide as the loops and as long as the wound, the corrugations lying parallel to the wound. When enough sutures have been introduced, usually about an inch apart, a pair of long artery forceps is passed under the loops of the sutures on one side; the rubber sheeting is then

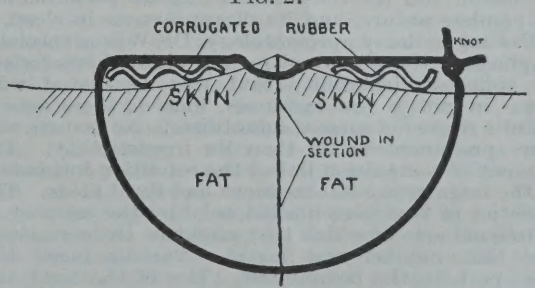
FIG. 1.



The corrugated rubber is shown in position on the right of the figure. On the left the rubber is grasped by the forceps ready to be drawn under the sutures. Two sutures only are shown for simplicity.

compressed laterally, grasped by the forceps, and drawn under the row of suture loops. (This will be readily understood by referring to Fig. 1.) This is then done on the other side of the wound, which may gape a little between the sutures. It is usually possible to adjust the edges with a pair of dissecting forceps so that they are accurately apposed; or, if the surgeon

FIG. 2.



Schematic section of wound, suture, and rubber.

prefers it, a row of running sutures may be inserted. These need not be tied and can be removed as soon as the wound has agglutinated—that is to say, in three or four days. The final arrangement is shown in diagrammatic section in Fig. 2.

If drainage is required there is plenty of room between the big stitches, and the presence of the rubber will not be found to complicate matters at all. When the stitches are to come out, they should be cut over the rubber on the side opposite to the knot, so that they will draw out simultaneously from the deep and superficial punctures.

[1] J. L. O'Flyn: Paroxysmal Tachycardia in an Infant, Brit. Jour., 1925, i., 507.
[2] THE LANCET, 1918, i., 299.
[3] Ibid., 1920, i., 25.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 505.*)

SECTION OF NEUROLOGY.

WEDNESDAY, JULY 20TH.

THE first session of this Section was held under the presidency of Prof. EDWIN BRAMWELL (Edinburgh), and was devoted to a discussion on the

TICS AND ALLIED CONDITIONS.

Dr. S. A. KINNIER WILSON (London) referred to the confusion that still existed in the classification of involuntary movements; the student being bewildered by a host of ill-differentiated expressions such as electric, fibrillary, variable, and habit choreas, electrolepsy, habit spasm, myospasm, myoclonus, polyclonus, paramyoclonus, and myoclonotonus. The first duty of the clinician was to separate such classes of movement as appeared to have distinctive characters and to insist on the adoption of an unvarying terminology for each. Some of the above terms, however, bad as they were, stood for definite clinical entities and would scarcely now be abandoned.

Dr. Wilson then dealt in turn with the different definitions of a tic that had from time to time been advanced, such as those of Cruchet and Meige and Feindel. The distinctive features of a tic were embodied in the latter's definition: "A tic is a coördinated purposive act, provoked in the first instance by some external cause or by an idea; repetition tends to its becoming habitual, and finally to its involuntary reproduction without cause and for no purpose; at the same time its form, frequency, and intensity are exaggerated; it thus assumes the characters of a convulsive movement, inopportune and excessive; its execution is often preceded by an irresistible impulse, its suppression associated with malaise. The effect of distraction or volitional effort is to diminish its activity; in sleep it disappears. It occurs in predisposed individuals, who usually show other indications of mental instability." The important points were the psychical origin of tics, the existence of a psychical defect in impairment of volition, and of a motor defect in the disfigurement or caricature of a normal movement, repeated in season and out of season, but usually containing the recognisable germ of what was once a purposive act of cortical origin; the malaise that accompanied its repression and the relief succeeding its performance, its painless nature, and its disappearance in sleep.

Passing to the symptomatology, Dr. Wilson specially emphasised the abnormal mental state characterised by volitional instability that was associated with tics; in not a few instances, indeed, there was a definite degree of mental infantilism. No feature was more prominent in tic than its irresistibility. The element of compulsion linked the condition intimately to the large group of obsessions and fixed ideas. The varieties of tics were limited only by the number of functional acts of which they might be the caricature, and that number was legion; various facial tics were perhaps the commonest. Tics of the head and neck were also common—nodding, rolling, shaking, &c. Protean tics of the arms occurred—e.g., scratching, rubbing, stroking, pounding. Tics of the trunk and lower limbs were less common. Behind all tic phenomena lay a psychical predisposition. The common association of tics with mental defect and imbecility effectually precluded any other view. In some cases, possibly the majority, the tic made its appearance as the expression or outward manifestation of an unconscious desire, or of a desire that was often but half hidden from consciousness. Dr. Wilson's experience confirmed that of Meige and Cruchet, that tics rarely accompanied hysteria, yet in its egocentricity and failure to govern emotions the temperament of the tiqueur undoubtedly recalled that of the hysteric. Any purposive coördinated act passed by dint of repetition into a habit, an acquir automatism, nor did its character of necessity chan if its raison d'être disappeared. Should the now pu poseless habit assume an exaggerated form and haphazard incidence it had degenerated into a t Movements of defence against a source of irritati sufficed in some instances to set in motion t processes leading to a tic. Finally, there was t possibility of a tic being engendered on the basis pre-existing involuntary movements of another cla of which the passing of choreic into tic reactions w probably the best known example.

Prognosis depended upon the degree of volition impairment of the patient; in some children ti were purely transient; in some adults persiste treatment might certainly effect a cure. The old the patient and his tics, the less favourable were t chances of relief. Treatment resolved itself und the following headings: (1) General hygienic measu —an aim in life, suitable environment, especially t removal of a spoilt child from over-fond paren disciplinary régime to develop self-control, eliminati of septic foci, and care of general health. (2) Sedati medicinal treatment might benefit every now a then, especially when the pathological habit was engrained in the nervous system as to have sh altogether its psychical element. Many cases in ou patient practice were benefited by a course of bromi in comparatively small doses. (3) Hypnotic a other forms of suggestion had benefited some record cases, but Dr. Wilson's own experience had not be reassuring: the same observation applied to psych logical technique generally. (4) The principle treating tics by muscular drill or re-education h justified the confidence placed in it. Brissau scheme consisted in requiring the patient to perfectly still for increasing periods of time, from second or two at first to minutes and even hou The reverse of this method was to cause the patie to innervate the tic groups but in ways contrary those executed involuntarily. It was a good plan see this programme carried out in front of a mirr

Prof. G. C. GUILLAIN (Paris) confined his observ tions to spasmodic torticollis, which in his experien frequently had an organic basis. He had seen su torticollis in association with pyramidal syndrom and organic familial spasmodic paraplegia, as well in various post-encephalitic states.

Dr. A. F. HURST (London) dealt with vario visceral tics. Most cases of so-called flatulence we in reality due to "aerophagy," or air-swallowin An attempt at belching for the relief of alleged flat lence resulted in the swallowing of air; repetition the act caused more air to be swallowed, until such a accumulation occurred that it was eventually expelle Explanation of this mechanism to the patient oft resulted in cure. Other visceral tics were those sniffing and some forms of coughing, the latter oft in association with asthma.

Prof. R. CRUCHET (Bordeaux) summarised t medical literature of tics from the time of Charl Bell (1830), and Marshall Hall (1852). Tics we characterised by repetition in an involuntary, inte mittent, and absurd manner, at irregular interva with an exaggerated frequency. Their executi was imperious and irresistible; their performan could be delayed, but eventually they got the bett of the will. He entirely agreed that associated wi tics was an abnormal mental state characterised mental infantilism, instability of ideas, inconsistenc carelessness, impulsivity, and loss of judgment. regards treatment, Prof. Cruchet favoured the meth of "respiratory gymnastics" which was especial beneficial in children.

Dr. B. SACHS (New York) was pleased to he Dr. Wilson emphasise the frequent psychogen origin of tics and the association of mental instabilit Nevertheless, it was relatively rare to find any mark concomitant mental disturbance. So many tics we begun early in life that it was essential to atta them at that period. Many tics might have be checked at their beginning if the physician had been

vere disciplinarian. Kindly but firmly the young queur must be told that the tic must stop and that e is the one to stop it.

Dr. STANLEY BARNES (Birmingham) believed that ily people of a nervous temperament, mainly herited, were liable to tics. They occurred, in his perience, more commonly in childhood and adolesnce than in adult life. He agreed with Dr. Sachs to treatment; he himself followed the same urse, relying chiefly on discipline.

Dr. GRAINGER STEWART (London) said that tics ight arise from seeking a pleasant sensation or in oiding an unpleasant one. He agreed that the ajority were psychogenic in origin, and cited a case which the tic had disappeared following revival der hypnosis of a forgotten memory.

Dr. R. G. GORDON (Bath) considered that there ight be organic factors which determined the origin d nature of the tic in the psychopathic individual. rticollis, for instance, might originate from muscular eumatism of the trapezius. It was necessary, erefore, to examine the patient carefully for pathogical conditions other than in the nervous system d treat the lesion accordingly.

Dr. N. D. ROYLE (New South Wales) had found ronic arthritis of the cervical vertebræ in association th spasmodic torticollis.

Dr. A. J. BROCK (Edinburgh) agreed fundamentally th the disciplinary method of treatment, but ought that the particular symptom should be less mphasised and more attention paid to the underlying ychical constitution.

Dr. P. C. CLOAKE (Birmingham) said that only one ychic motive for the persistence of tic had been erred to—viz., the satisfaction derived from the easurable sensation obtained from the performance the tic. It was equally important to realise, wever, that in the psyche there were different els of function and ample opportunity for psychic otivations in addition to this.

THURSDAY, JULY 21ST.

The second meeting of this Section was held in njunction with the Section of Mental Diseases. of. EDWIN BRAMWELL again presided, and the bject of discussion was

EPIDEMIC ENCEPHALITIS.

Dr. IVY MCKENZIE (Glasgow) described the history the disease, especially in Glasgow, and also dealt th the epidemiology. From 1918 to 1924, he said, e attention of the profession had been directed to a new disease," accounts of which came from various rts of the world and a description of which had eady been given a year earlier by von Economo in ustria. That it was new admitted now of no estion. An anatomical basis was soon established a non-purulent form of encephalitis which was scovered in every case which came to autopsy. its pathological anatomy encephalitis lethargica fered from other forms of encephalitis in that there s an absence of naked-eye signs of disease in the atral nervous system. In the acute stage the croscopical lesions were diffuse, were of a moderately ute inflammatory character, and tended to be more nounced in the basal ganglia and the substantia gra. In the Parkinsonian syndrome it had been und that the most pronounced lesions were in e substantia nigra. Dr. McKenzie was not conced, however, that the histological appearances sembled those observed in such chronic affections of e central nervous system as syphilis, tuberculosis, laria, or trypanosomiasis. The possibility must be ken into account that the degeneration of the bstantia nigra was not an isolated lesion accountable the clinical phenomena in the sense that anterior rnual degeneration accounts for the paralysis of liomyelitis, or destruction of the motor cortex counts for upper neuron hemiplegia. It was more ely that the Parkinsonian sequelæ were the expresn of a disordered function of the whole comndium of reflexes related to the basal nuclei, the d-brain, and the vestibular apparatus, and concerned with the regulation of those phases of automatic posture which rendered voluntary movement possible. The virus responsible for encephalitis appeared to show a predilection for the great correlating centres of the nervous system—that is, for the grey matter on the afferent side of the proprioceptive system, for certain basal nuclei, and for the posterior cornua of the cord. He suggested, therefore, that the Parkinsonian sequelæ was due to a functional derangement of this system incident to the destruction of some of its vital parts in the early stages of encephalitis.

Dr. J. G. GREENFIELD (London) dealt with the ætiology, clinical pathology, and morbid histology of the disease. He said that the virus responsible for encephalitis lethargica had not yet been identified, and that it was still uncertain if the disease had ever been transmitted to animals. Some workers claimed that the ætiological agent was identical with that of herpes febrilis, differing from it only in possessing a greater affinity for the nervous system. The only serious criticism brought against this theory was that in the few instances in which encephalitis had been caused in rabbits by inoculation of human material, the virus of herpes febrilis had been accidentally included. This might well have been so in Levaditi's first case, in which herpetic vesicles were present at death. In fact, Flexner had obtained an apparently identical virus from the cerebro-spinal fluid of a convalescent case of neurosyphilis. Herpes was a common and widespread disease in man, and the fluid from herpetic vesicles was constantly pathogenic to rabbits. The whole question remained sub judice. The only laboratory examination which gave any assistance in the clinical diagnosis of the disease was that of the cerebro-spinal fluid. In the early stages of the disease this fluid might be quite normal or might contain a slight excess of glucose, which was of doubtful significance. Usually, in the first few weeks of the disease, however, there was a lymphocytosis of 10 to 100 or even more cells per c.mm. The cells were usually all mononuclear, with occasional polymorphonuclear cells. Excess of protein was exceptional, and a coagulum practically never formed. Not infrequently the colloidal gold reaction gave a curve of the luetic type; paretic curves were much rarer. With regard to the histological picture of the disease, there had been a tendency to focus attention on the mid-brain, forgetting the cerebral cortex. He did not agree with Dr. McKenzie that the lesions were confined to the proprioceptive system, and he showed slides illustrating involvement of the anterior cornual cells of the spinal cord.

Dr. GEORGE RIDDOCH (London) considered the chronic forms of the disease, and maintained that encephalitis lethargica was a chronic malady comparable in its course with neurosyphilis and disseminated sclerosis. An important group of cases was that in which the disease appeared to be chronic from the outset. Although the virus had a predilection for the brain-stem and corpus striatum, no part of the nervous system was immune. With such a widespread infection, classification on rigid anatomical or physiological lines was impracticable. The Parkinsonian syndrome, however, was the most common disability of a general kind in adults resulting from the disease; it might appear rapidly during the acute illness, but more often its evolution was slow and progressive, although in its course there might be stationary periods. As the clinical picture in its fully developed form was so familiar, Dr. Riddoch confined his observations to milder forms of Parkinsonism. In its minimal development there was slight fixity of the facial expression and of the eyes, a tendency to hold the head still, and a diminution in the natural fidgetiness of the healthy individual.

Dr. Riddoch next dealt with the various involuntary movements—choreiform movements, bradykinesia, myoclonic movements and tremors, muscular atrophy, and spastic paraplegia—that might result from the disease. He also described the forms of respiratory disorder and the endocrine involvements—as shown

by adiposity, diabetes insipidus, &c.—that might occur. Finally, he mentioned a clinical picture of chronic encephalitis lethargica termed the "asthenic syndrome," of which enfeeblement was the constant and main symptom, and in which the physical signs might be slight.

Dr. R. M. MARSHALL (Glasgow) dealt mainly with the mental aspects of encephalitis lethargica. Age, he stated, appeared to play an important part in the incidence of the residua and sequelæ of the disease. Psychomotor excitement, with or without nocturnal wakefulness, and somnolence in day-time, choreiform movements, and disorders of respiratory rhythm all showed a preference for the early years of life. On the other hand, the Parkinsonian syndrome, melancholia, confusion, and residual palsies, were the appanages of youth and adult life. Much attention had been paid to the moral aspect of the behaviour of the restless, naughty child, but very little had been said about the maniacal character of his misbehaviour. There was nothing cunning or underhand about the misdemeanours of these children; unlike delinquents, they did not choose a convenient season in which to commit misdeeds; they carried them out in the public eye. In brief, there was much instability and little or no evidence of moral depravity.

Prof. R. CRUCHET (Bordeaux) maintained that slowness of movement (bradykinesia) in post-encephalitic states was quite independent of muscular hypertonus. He also showed graphs illustrating the increase in the muscular relaxation-time in cases of hypertonia, together with others demonstrating the greatly decreased relaxation-time following the injection of scopolamin.

Prof. G. C. GUILLAIN (Paris) described several cases in which the patients complained of symptoms that at first appeared to be those of myasthenia gravis. Subsequent investigation showed the cases to be examples of post-encephalitic disorders, a fact which emphasised the importance of fully investigating the physical signs and history in all cases of apparent myasthenia and neurasthenia.

Dr. EDWARD MAPOTHER (London) drew attention to the fact that many cases of post-encephalitic states might be missed if attention were focused only upon the psychological aspects. The severity or otherwise of the acute phases bore little or no relation to the development of mental symptoms. Also, the intensity of mental symptoms was quite independent of the degree of physical disability.

Dr. B. SACHS (New York) had found that ocular manifestations were usually the first signs of the disease. Not a few cases, however, might begin with an apoplectiform seizure. He thought the term "central and basilar encephalitis" was a better designation of the disease than "encephalitis lethargica."

Dr. W. A. POTTS (Birmingham) regarded the disease as chronic, specific, and progressive. He had met with Parkinsonian cases alternating between euphoria and depression. As regards treatment, Dr. Potts stated that he had seen good results even in chronic cases following the use of autogenous vaccines, the latter being made from organisms obtained from the nose and throat. Prolonged Plombière's treatment was also of value.

Prof. KARL PETREN (Sweden) called attention to the value of the nasopalpebral reflex of Guillain in the diagnosis of Parkinsonism. This consisted in the exaggeration of blinking of the eyelids elicited in tapping the skin about the root of the nose. In Prof. Petren's experience, the interval between the onset of encephalitis lethargica and the development of a Parkinsonian syndrome had never been longer than four years; it was a question of great practical importance to determine how long this interval could be, and if others had had the same experience as he.

Dr. N. G. ROYLE (New South Wales) gave a cinematograph demonstration of two cases of Parkinsonism in which posterior sympathetic ramisectomy had been performed. The films showed the condition of the patients before and after operation, improvement being very striking.

Dr. J. M. WOLFSOHN (San Francisco) said that it had been his experience that few acute cases of the disease passed into a chronic stage if six months' complete freedom from mental and physical fatigue were insisted upon. The management of an acute case included complete rest, intestinal antisepsis, and the administration of polyvalent autogenous vaccines made from intestinal and nasopharyngeal organisms.

Dr. T. A. ROSS (Penshurst) emphasised the importance of a full and accurate history if many cases of neuroses were to be distinguished from encephalitis lethargica.

Dr. POSTON (Oldham) described a case with involvement of ocular muscles, the eyeballs being ordinarily immobile. Following the syringing of the ears with cold water the patient was able to move his eyes temporarily in all directions.

Dr. P. C. CLOAKE (Birmingham) considered that the mental symptoms of encephalitis lethargica were those of a toxi-infective type, and resembled in some ways the acute mental effects of toxins such as alcohol. He thought the mental changes could best be understood by regarding mental and nervous phenomena as evidences of orderly evolution and distribution of energy derived from neuron activity at different levels in the nervous system.

SECTION OF DERMATOLOGY.

THURSDAY, JULY 21ST.

THIS Section met under the chairmanship of Dr. R. CRANSTON LOW (Edinburgh).

Dr. S. E. DORE (London) opened a discussion on

THE USES AND LIMITATIONS OF ULTRA-VIOLET RADIATION IN DERMATOLOGY.

He quoted from a paper, written in 1902 by himself jointly with the late Sir Malcolm Morris, the words: "Although in our opinion the results we have obtained have fully justified the employment of the treatment, and in some cases no other treatment could have produced such good results, we do not regard it as the only method to be used in all cases, nor advocate it indiscriminately to the exclusion of other methods." This was still his opinion to-day. After reviewing the history of light treatment and the modifications of the original Finsen lamp, Dr. Dore pointed out the difficulty that modern apparatus had not solved—that is the lack of penetrating power in mercury-vapour and tungsten lamps, and the small area available for concentrated carbon arc rays. He doubted whether many extensive cases of lupus were cured by unaided light treatment. With surgical measures and selective caustics much more rapid results could be obtained. There was no doubt that ultra-violet radiations were an excellent stimulant of hair-growth, but the tendency to spontaneous recovery made it difficult to assess the value of light treatment in alopecia areata. The results seemed to depend, as in lupus, on the intensity of the inflammatory reaction. He had seen extensive psoriasis eruptions clear up under light-baths and relapse during a continuance of the treatment; the majority of cases showed little permanent improvement. It seemed probable that better results would follow strong inflammatory reactions with erythema and desquamation, but in most cases equal benefit could be achieved more quickly by chrysarobin. Improvement in acne vulgaris was chiefly due to exfoliation; the results were not much better than those following keratolytic preparations, and were much worse than those produced by X rays. Light treatment benefited cases of impetigo and staphylococcal infections which failed to yield to antiseptic applications; it was also useful in chronic septic and tuberculous ulcers, and in some acro-asphyxial conditions. The combined local and general use of light, first advocated for lupus by Reyn in 1918, did not invariably produce good results. The biological action of the rays was probably mainly destructive, although in rickets the effect was

scribed to activation of the skin cholesterol. Heat nd fresh air were probable factors in the increase f hæmoglobin and leucocytes. The stimulating effect n operators was very likely due in part to the nhalation of ionised air, and the psychological factor ust not be forgotten. Nor must luminous and heat ys be left out of account, since comparatively few ltra-violet radiations could penetrate the atmosphere. he value of glass transparent to ultra-violet rays as problematical in cities. The basal metabolic te was not raised by actinic light unless cooling air ere also present, and the hardy northerner took ecedence, in health and endurance, of the softer, nbaked, ultra-violet-lighted southerner.

Dr. F. GARDINER (Edinburgh) stressed the psychic fects of ultra-violet therapy, and deprecated its mmercialisation. Its value in rickets was estabshed, but beyond that there was an ever-increasing ea of doubt. We had as yet insufficient data from e physicist and biochemist. Useful additions to the mple lamp were focusing with a quartz lens and plying sufficient pressure to render the part anæmic. tuberculosis of the skin light gave great benefit; casional failures were probably due to the association pulmonary affection with the skin condition. ngating and ulcerated types responded most pidly. Out of 171 cases treated by him since 1924, had been cured and 65 improved. The addition treatment by trichloracetic acid and caustics had ven better healing and good cosmetic results. At esent the carbon arc was the best lamp, and the ercury vapour the least satisfactory. Lupus erythematosis was not one definite disease, but those cases hich were associated with a toxic focus responded light, as did skin diseases associated with general bility. Prurigo in children, but not in adults, as benefited. Light would allay the superficial stulation of sycosis, but the condition might be gravated by light applied by inexperienced workers. oriasis was made worse, but alopecia areata was proved. Varicose and chronic ulcers were palliated, t it was for the Bazin type of ulcer that light was pecially useful. In conclusion, Dr. Gardiner said at the effects of light were systemic, and it could be ed where there was some systemic disturbance; so as a stimulant for certain areas, and to reduce stulation.

Organisation in the Treatment of Lupus.

Dr. W. J. O'DONOVAN (London) reviewed the story of the light department at the London spital. He said that optimism or pessimism wards the problem of lupus depended on how it is tackled: it was a fight needing an organised ily attack. The nodules should be treated night d morning, and the intervening time filled in with neral light baths. It was essential that the patients under control; the public health authority must y their fares, see that they had proper nourishment d so on, and there must be a school within the ht department. In these circumstances the extent the disease need cause no anxiety; the only curable cases were those with lymphatic obstruction the face. The type of patient who had had his uble for 30 years and only came up on the persuasion his friends was better untreated, for he would not tend regularly and would only disgrace the department. Picked cases, however, would give 90 per cent. cures. Among the rare disasters might be mened three deaths during light treatment for fection of the larynx, one suicide, and three cases tuberculous meningitis. Cancer following light eatment had never been seen in all the 26 years' perience of the London Hospital. Psoriasis might temporarily benefited, and, anyway, the course is encouraging to the patient. He had seen cases red by exfoliation—ten minutes of the mercury-pour lamp at 2 feet for a week, and then at 1 foot. xfoliation might also cure acne, but the speaker d seen this complaint develop during a course of ht treatment. As to prurigo, if light comforted ese patients they should have it, and if there was henisation they should have it strong. For the purely psychic case it was as good as any other treatment; the patients appreciated it, and were, at any rate, free from messy ointments. Multiple subcutaneous abscesses in infants might be dispersed by three months of steady light treatment. For septic compound fractures light was extremely useful, lowering fever and promoting healing of sinuses and separation of sequestra.

Prof. J. G. TOMKINSON (Glasgow) related his personal experience of light therapy in lupus and emphasised its psychic value. He characterised it as one of the most useful therapeutic agents of the present century, even if it went no further than clearing up the loathsome features of extensive ulcerating tuberculous lesions.

Dr. T. C. GILCHRIST (Baltimore) quoted the unpublished work of a fellow-countryman who had succeeded in measuring the dosages of ultra-violet rays by the use of lithopane.[1] Much more harm than good had been done by X rays, and there was a danger of the same results following the indiscriminate use of ultra-violet light. More people were extremely sensitive than was recognised; possibly they could be desensitised by small doses. Sunlight, in his opinion, certainly could produce cancer. Other workers had succeeded in obtaining the "border rays" between the X and the ultra-violet, and had had good results from their use in cancer of the skin. The group called "ultra-violet" might be a mass of rays, many of which were not necessary. He suggested an answer to the problem of why hydroa vacciniforme with hæmatoporphyrinuria should be fatal, that the collapse of the blood pressure was a reflex excitation of the medullary centres due to the effect of light on the nerve endings in the skin. Lupus was very rare in America. He stressed the value of diathermy, as the desiccating knife left a sterile partition between the diseased area and the healthy, which the surgeon's knife could never do.

Sir NORMAN WALKER (Edinburgh) recalled the early history of lamp treatment, and said that many of the first patients were wonderfully well to-day. He queried the value of the present-day tendency to get stronger and stronger lamps, and thought it might be better to have longer exposures to rays of less intensity. He agreed with Dr. O'Donovan about the need for organisation in light therapeutics. Very many treatments did lupus good—Unna's old salicylic acid paste was still one of the best. It was essential for the doctor to be an optimist. Perseverance was the first lesson Finsen had taught. X ray treatment led to many deaths, and was only justified in the hands of a real expert. Moreover, there was a chance that it would produce cancer of the skin. There was no doubt that sunlight caused cancer exactly like X ray cancer. It was time to put a brake on the extreme use of light. Early diagnosis was of the greatest importance. He thought that with modern fashions the neck escaped psoriasis more often than it used to. Unfortunately, practitioners had been taught for generations to give a bad prognosis for this condition, but if the patients could be persuaded to persevere to the end very many of them got well.

Dr. H. MACCORMAC said that the claims of light therapy had been exaggerated in some quarters. Results in lupus and psoriasis were variable, and the former seemed to depend in some measure on the place in which the patient got the disease and was treated. Scandinavians were more liable to tuberculous conditions of the skin than other races, and their lesions tended to clear up more readily. In Austria these skin conditions were almost unknown, but cancer was much more common. Of six patients who had had total alopecia for many years, five had almost completely recovered under violet light. Some tabes patients reached a stage where they hung fire; it was then useful to knock off all antisyphilitic treatment for a time and give a course of ultra-violet rays. Marked improvement often followed.

Dr. W. MITCHELL (Bradford) preferred diathermy to any other treatment for lupus; it produced a

[1] See also Amer. Jour. Phys., 1924, i., 49.

soft scar with no pitting. Cases sent up for light treatment as labelled malnutrition should always be investigated for diabetes.

Dr. A. C. ROXBURGH (London) agreed with Dr. Dore's remarks, and commented on the value of ultra-violet light in the diagnosis of ringworm. Fluorescence was seen on the infected hairs through Wood's glass. This method had been found very satisfactory as a test of cure after treatment and as a means of detecting very early infections. General light baths were valuable in tuberculosis of the skin, especially as an adjunct to local caustics. They benefited 50 per cent. of those who could not have sanatorium treatment, but would not take the place of air, good food, and sunlight. There was a certain risk of lighting up a lung infection. Light was very useful for multiple boils, superficial sepsis, unhealed wounds, and a few chronic dermatitis and eczema cases. Locally it benefited alopecia and telangiectasis after X rays. Sycosis might be improved but could not be cured. The spread of alopecia was not affected, and the treatment was of no use for premature baldness. Acne was much better treated by X rays, and the results in psoriasis were no better than those of chrysarobin. Seborrhœic dermatitis was aggravated.

Dr. R. AITKIN (Edinburgh) quoted cases of hypersensitiveness to light, and said that the armlet was of no use for gauging reactions. He had tested artificial silks, but had found no evidence that they let the ultra-violet rays pass.

Dr. HALDIN DAVIS, answering a question from Dr. Aitkin about the use of ultra-violet rays for ringworm, said that he had had cases previously treated in vain with light which cleared up completely with X rays.

Dr. F. D. HOWITT (London) said that artificial light never gave the same results as sunlight, but went some way towards it. It was best for cases, such as alopecia and prurigo, where the sympathetic system was involved, for those where the resistance of the body was reduced by infection, as in syphilis, tuberculosis, acne, sycosis, and lupus, and where the ionic calcium was lowered, as in the catarrhal child. Good results could not be obtained from two or three treatments, and more harm than good was done by large exposures.

Dr. K. RUSSELL (Newcastle) doubted whether there were any difference between the results from real and artificial light—for example, from Leysin and Copenhagen. Many conditions could not be treated by natural light. He had treated ringworm successfully with ultra-violet light.

Dr. W. BROWN (Glasgow) spoke of the need for educating the public, and of the abuse of ultra-violet or so-called violet light in such places as beauty parlours.

Sir ROBERT BOLAM (Newcastle) said that the truth lay between optimism and pessimism, and caution should be the note of the day. He stressed the value of general control and discipline associated with the light treatment of lupus. No one who had seen skin carcinoma in field workers would forget that we were dealing with something a little dangerous in X rays.

Dr. CHRISTINA BARROWMAN spoke of the general improvement and relief from pain effected by ultra-violet light treatment of burns. She had cured very early cases of ringworm in babies with light.

The PRESIDENT rated the danger of carcinoma after X ray treatment of lupus at 50-60 per cent. It would be years before the results of ultra-violet treatment could be known, and it therefore behoved workers to go cautiously. Everybody was experimenting with it; it was for the dermatologists to find out the underlying principles. He suggested that the benefit in lupus was due to the fact that the antibody to tuberculosis was anchored in the skin itself. Possibly all the diseases which gave marked skin reactions were those likely to be benefited by light therapy.

Dr. H. C. G. SEMON (London) read a paper on the

Value of Krysolgan in Lupus Erythematosus.

Reviewing the evidence for and against the tuberculous theory of the ætiology of this condition, he summed up in its favour, and said there was no doubt of th value of gold treatment in some types of cas Krysolgan was an attempt by the firm of Schering t get a non-toxic product. The urine should be teste for albuminuria during treatment, and renal tube culosis was a direct contraindication. Increasir weekly doses of 0·015, 0·15, 0·375 and 0·75 grai should be given. There was no febrile reaction, b stomatitis or dermatitis might occur and there migl sometimes be fleeting pains in the fascial space A focal erythematous reaction indicated a goo prognosis. Of nine cases which Dr. Semon reporte fully, six had been greatly improved, one unimprove German workers had had better results. He calle attention to a high proportion of tuberculous ætiolog in the histories of the successful cases. He conclude that, although the treatment was not free from ris the disease was at least as distressing to the patie as syphilis, in the treatment of which equal risks we taken.

Dr. GILCHRIST pointed out that the same cau could produce widely different clinical appearance Lupus erythematosus cases could be grouped in those which were tuberculous and those which we not. He mentioned three cases cured by radium.

Dr. O'DONOVAN said he had tried krysolgan o seven cases: two were distinctly benefited.

Dr. ROXBURGH had also had seven cases; thr were cured, two much improved, and two unaffecte after 11 doses. It was a very useful treatment, bu only time could show whether its results were pe manent. Many cases could be cleared up temporari by protein shock.

Dr. HALDIN-DAVIS quoted nine cases with tw cures. Others had shown temporary improvemen He gave smaller doses than those indicated by D Semon.

The PRESIDENT remarked on a characteristic sk rash developed by patients treated in the medic wards with sanocrysin. It looked just like lupu erythematosus, but always cleared up.

Dr. G. B. DOWLING (London) read a paper on the

Treatment of Tinea Capitis with Thallium Acetate.

He said that this was a subject which ought to l thoroughly thrashed out. X ray epilation had certa well-known disadvantages. A dose of 8 to 9 mg. p kg. of body-weight of thallium acetate produce satisfactory and complete baldness. Over a thousar cases had been reported from the Continent, and th speaker had tried it on 100 cases during the la three years; ten were still under treatment. On th seventh day the hair loosened, on the fourteenth came out, and depilation was complete on the nin teenth save for some fine lanugo hairs which nev fell and were never attacked by ringworm. General the eyelashes and eyebrows remained, though th outer third might be thinned. Sometimes stump would not fall spontaneously, but brushing brough them out, except on a few occasions, when a fungicid had to be used all over the scalp to protect the ne hairs which soon appeared. Ointment should l rubbed in all over the scalp twice daily from the firs and stumps removed every day. This should l continued for two weeks after all traces of infectio had disappeared. Regrowth generally began with a fortnight. Combination of thallium and X ra did not work, but all the children under 3 treate with thallium alone were cured, as were 35 out of over 3. The toxic effects must not be forgotten only two cases had been entirely free from ther The children were peevish, anorexic, and drows to a very variable extent. In animals the thyro suffered and the children showed hypo- or a-chlo hydria. Small doses of thyroid and hydrochlor acid produced rapid recovery. Very young childre were more tolerant of the drug than older ones, bu none were any the worse for it in the end. There wa no danger of permanent epilation, and the cost wa very slight. The toxic effects and some uncertaint of complete epilation were the only disadvantages.

Prof. J. G. TOMKINSON pointed out how unfortuna it was that epilation was inseparable from the trea

ent. The ideal method would be to anticipate and spel the infection without epilation.

Dr. ROXBURGH described 19 cases treated at St. artholomew's Hospital. Eleven were cured, and ur had not been followed up. He gave 8·5 mg. per g. of body-weight.

Dr. SEMON said he had been using the method nce Dr. Dowling introduced it. No effort should be ared to find some new method of treating this cially serious condition. He had had one failure ly out of 20 cases. He followed up epilation with r. Adamson's ointment (equal parts of sodium loride and vaseline), which produced a superficial lliculitis and brought out the stumps. Thiosulphate soda might prove a useful antidote for the toxic ects.

SECTION OF VENEREAL DISEASES.

FRIDAY, JULY 22ND.

THIS Section met under the presidency of Mr. AVID LEES (Edinburgh), the morning session being voted to

ROUTINE EXAMINATION OF CEREBRO-SPINAL FLUID IN SYPHILIS.

Mr. C. H. MILLS (London) pointed out that upon rly recognition of involvement of the central nervous stem depended much of the subsequent management the syphilitic patient, and the prognosis from a urological point of view. The routine examination the cerebro-spinal fluid was therefore absolutely sential in the management of syphilis at all stages the infection. In the primary stage it was an vantage, in the later stages it was imperative, to ow the condition of the cerebro-spinal fluid before ginning treatment. The initial course of treatment ould be standardised to consist of the administration not less than 4 g. of salvarsan, or the equivalent of osalvarsan plus bismuth and mercury, over a period t exceeding 14 weeks. This course should be looked on as more or less of a therapeutic test, and should followed by re-examination of the cerebro-spinal id within six weeks of the cessation of treatment. the earlier cases this period was, he thought, the ost critical epoch in the career of a syphilitic, since was then that the cerebro-spinal fluid might provide ssibly the first and only indication of invasion of the ntral nervous system. The warning obtained from utine examination at this period should entirely event the subsequent development of meningeal lapses and their sequelæ.

Discussing the importance and significance of the rious tests, Mr. Mills said that the Lange colloidal ld reaction was used in all the frankly neurological ses in his own series, and from ten years' clinical servation of the progress of a considerable number neurosyphilitics he was convinced that a paretic nge curve, accompanied by a persistent positive assermann reaction in the cerebro-spinal fluid, was rong presumptive evidence of parenchymatous volvement of the central nervous system. Revised tensive schemes of treatment should be started at ce in all such cases, thus saving much valuable time. every early case treated *ab initio*, the cerebro-spinal id should be examined, together with a blood assermann test, at the end of the first, second, third, d fifth years. All cases presenting a persistent sitive blood Wassermann reaction, at whatever ge of the infection the patient first came under servation, should have the cerebro-spinal fluid vestigated besides a careful neurological examination. By routine procedure of this kind the disasters endant upon cerebral and spinal endarteritis uld be anticipated and by adequate treatment ey would be entirely prevented. He urged that a utine blood Wassermann test should be made upon ery patient at all medical institutions, irrespective the nature of the complaint, and when this was und to be positive an investigation of the cerebro-inal fluid should follow. Furthermore, once the ebro-spinal fluid had been found to be pathological a syphilitic case, subsequent examination of the fluid was imperative for many years after it had been rendered normal. This regular re-examination was especially indicated in any case which had once relapsed, and in definite cases of neurosyphilis after the fluid had become normal. If lumbar puncture were limited to the cases with obtrusive signs irreparable damage might result, since a low-grade parenchymatous encephalitis, with little or no meningeal involvement, might exist for years with indefinite symptoms impossible to classify or interpret without the aid of spinal fluid tests. On the other hand, certain types of neurosyphilis, including the purely vascular type, gumma unaccompanied by meningitis, some unusual psychoses, and luetic epilepsy were often found with little or no change in the cerebro-spinal fluid. Even in the presence of such negative findings, however, the neurosyphilis could be much benefited by specific treatment.

The earlier treatment was begun the greater was the chance of preventing syphilitic involvement of the central nervous system; the earlier the recognition of such involvement, when it had occurred, the greater the possibility of preventing the invasion of the parenchyma.

Dr. GEORGE RIDDOCH (London) said that no one could question the necessity for examining the cerebro-spinal fluid in the early stages of syphilis. But it was necessary to consider what was the value of positive findings without clinical manifestations of involvement of the central nervous system, and what was the value of negative findings. There was discrepancy in the results of various observers. Mr. Mills had found that 4 per cent. of patients with primary syphilis had a positive Wassermann reaction in the cerebro-spinal fluid, whereas observations at Haslar during the war put the figure at the same stage as 14 per cent. Again, what was the value of a gold sol paretic curve six weeks after infection? Did it mean that paresis would really occur? Very many more findings were required, extending over a greater length of time, before the procedure could be standardised. Would serological examination be required at intervals during the whole life of a man who had once had a positive reaction in the cerebro-spinal fluid? Where tests had been positive and neurosyphilis had developed, the patients were, in Dr. Riddoch's opinion, unsafe for life. It was essential not to lose sight of the patient himself when dealing with his blood and cerebro-spinal fluid. Antisyphilitic drugs were poisons, and it was a mistake to chase after a positive Wassermann to the neglect of the patient's general health.

Dr. D. K. HENDERSON (Glasgow) said that there could be no question about the value of lumbar puncture. Who could give the prognosis in a mental case, without all the investigations—Wassermann reaction, globulin estimation, and cell count? Lumbar puncture, however, sometimes caused very severe headaches, and the only way to prevent these was to put the patient to bed for 24 to 36 hours. With the present methods of treatment, we might look forward to less neurosyphilis in the future. Sometimes, said Dr. Henderson, there was no correlation between clinical signs and pathological findings, and it would be wrong to diagnose parenchymatous syphilis on the pathological findings alone, to the patient's relatives. On the other hand, he quoted the case of a woman who in 1922 suffered from general paralysis of the insane, who then improved and was discharged, was readmitted, and was now a typical case of general paralysis of the insane in spite of the fact that all the pathological reports were negative. Again, a typical paralytic had gold sol, Wassermann, and other tests all negative. Clinical cases of several years' standing often reacted better to treatment than earlier and supposedly more favourable cases. He had seen cases in which tabes developed in spite of good intravenous treatment in the early days of the syphilitic infection.

Dr. J. G. GREENFIELD (London), referring to the use of the Kahn precipitation test for cerebro-spinal fluid examination, said that its results compared

favourably with those of the Wassermann reaction, but there was a tendency for the Kahn test to be negative earlier in treatment, while the Wassermann reaction was still weakly positive. Boltz's acetic-anhydride test was specific for general paralysis as distinct from cerebral syphilis. The very purest chemicals must be used and a negative result was of no value. The Kafka colloidal paraffin reaction corresponded closely with the Lange test and the type of curve corresponded better than with the mastic or bezoin reaction. Wu's colour estimation of the actual quantity of protein in general paralysis of the insane was of great value. Wu had used it for the estimation of globulin and protein, and had found that general paralysis of the insane was the only condition in which there was approximation of these substances. There were substances in the blood, said Dr. Greenfield, which inhibited the Wassermann reaction and so prevented the blood from showing as strong a reaction as it should. After treatment by malaria and tryparsamide it might be found that the cerebro-spinal fluid was strongly positive although the patient was apparently cured.

Colonel L. W. HARRISON said that whilst he had every sympathy for Mr. Mills's enthusiasm, he also had sympathy for the patient and perhaps also for the pathologist, particularly in view of the further four tests which Dr. Greenfield had mentioned. A working compromise might perhaps be to test the cerebro-spinal fluid in cases selected according to their behaviour to the first course of treatment. Analysis of the results of treatment in cases of syphilis in males at St. Thomas's Hospital had shown that in a high proportion of sero-positive early cases which were still positive at the end of the first course further treatment, even to the extent of six or seven courses, has not resulted in a reversal of the reactions. In a high proportion of these refractory cases, again, the cerebro-spinal fluid had been found after many courses to be positive. On the other hand, among early cases in which the serum was negative at the end of the first course and in which the patients had remained under regular treatment, he had not yet seen one with a positive cerebro-spinal fluid at the end of the programme of treatment. He thought that the first examination of the cerebro-spinal fluid in early cases might be limited to cases which had not responded with a negative serum reaction to the first or second course of treatment. It seemed preferable to carry out complete examinations on the few fluids likely to be positive than to make necessarily cursory examinations of the multitude; he said this without prejudice to the necessity of examining the cerebro-spinal fluid in all cases before discharge from treatment.

The failure of a proportion of cases to respond to routine treatment had made him think that some means should be sought for changing the tissues so as to make them responsive as soon as the serum reactions were not found negative at the end of the first course of, say, 6 g. of "914" with 4 g. of bismuth (as given at St. Thomas's Hospital). It was perhaps a mistake to go on pushing in more specific remedies in the hope that the spirochæte would be worn out by sheer weight of remedy. Some time ago Major Pettit had reported that at Rochester Row an unresponsive early case had been made responsive by the administration of thyroid, and perhaps by this or some other means the outlook in unresponsive early cases might be changed. Colonel Harrison was convinced that neurosyphilis was less likely to develop later if arsenobenzol was employed simultaneously with another metal (mercury or bismuth). In his own clinic the simultaneous method of treatment of early cases had never been followed or attended by cranial palsy.

Mr. VOGES (Edinburgh) read a paper on new tests useful in examination of the blood and cerebro-spinal fluid. The test depended on the use of colloidal gum benzoin, and in Mr. Voges's opinion it was easier to carry out than the colloidal gold reaction, and secured results very comparable.

In the course of the subsequent discussion,

Dr. FREELAND SMITH (Boston, U.S.A.) spoke of th necessity for painless spinal puncture. He believe that headaches after lumbar puncture were due t hypotension, but were not necessarily the result using a big needle.

Mr. DUNCAN LEES (Edinburgh) described himse as optimistic about modern forms of treatment. E showed cases of tabes and general paralysis of th insane in juveniles, and some adult cases of gener paralysis of the insane and of tabo-paresis, in most which there had been marked improvement wit malaria. He believed that malarial treatment present had a better effect than anything else on th mental condition in these cases, though often th serological reaction was very slow in showin improvement.

Dr. LAURA STEWART SANDEMAN (Aberdeen) sai that she was struck by the interference of syphil with endocrine function, causing in some cas amenorrhœa. Administration of thyroid might som times restore the system to normal and help th patient to get benefit from antisyphilitic treatment.

Dr. MARGARET RORKE (London) said that moder text-books stressed the need for frequent lumba punctures in the treatment of syphilis. Dr. Riddoc had rightly referred to the human element in treatin patients, and she would like to have some guidanc as to how often it would be considered necessary t examine the spinal fluid in women under the followin conditions: (*a*) in the event of all findings bein negative early in treatment, and the patient attendin regularly and receiving all the treatment considere necessary; (*b*) in cases where there has been a positiv Wassermann reaction in the cerebro-spinal fluid an pleocytosis at one time, which had later becom negative on treatment, and where there had neve been clinical signs of involvement.

Mr. MILLS, in his reply, laid emphasis on th necessity for cerebro-spinal fluid examinations in a cases of syphilis, beginning early. He thought tha when a minimum of 4 g. of "606," or an equivalen amount of "914," together with mercury, had bee given, it was desirable to test the cerebro-spinal flui six weeks later, which was a critical and importan time. If this test was negative there was no need t repeat it for at least a year. If the cerebro-spina fluid had once been positive, a specimen of fluid shoul be taken after each follow-on course.

GONOCOCCAL VACCINES.

In the afternoon of the same day a paper on th Employment of Certain Constituents of the Gonococcu in Treatment and of Other Constituents in Test of Cure was given by Major E. C. LAMBKIN (R.A.M.C. and Major LYN DIMOND (R.A.M.C.). For the las two years, they had been endeavouring, at th Royal Herbert Hospital, Woolwich, to elaborat a line of treatment of gonorrhœa in the male b intensive immunising methods. The aims of th treatment were: (1) to raise the immunity of th mucosa through which the organism entered th body; (2) to raise the resistance of the particula glands and organs susceptible to attack by th gonococcus; (3) to raise the antibacterial propertie of the blood and tissue fluids in order to minimis the risk of systemic spread of the infection; (4) t bring the patient under certain precise biochemica and colloid-chemical conditions which had bee found to give optimal results as regarded defenc against the invading organism and to place th infecting organism under conditions in which i was least able to withstand the defence mechanism of the body; and (5) to provide a test of cure. Thes objectives had been sought in the following ways (1) Thorough drainage of the whole urethra by mil irrigating fluids. (2) Maintenance of the patient' urine reaction at a pH of 7·2 to 7·4. (3) Intra urethral instillation of a product of gonococca metabolism, referred to as "exotoxin." (4) Paren teral administration of this exotoxin. (5) Instillatio into the urethra of another gonococcal product

referred to as "endotoxin." The procedure advocated for drainage was posterior irrigation, carried out by the patient, with a solution of potassium permanganate 1 in 20,000. The hydrogen-ion concentration of the urine within the desired limits was effected by the oral administration of large doses of disodium monohydrogen phosphate, averaging gr. 240 four times a day. The reaction was determined roughly by daily titrations of the urine.

Gonococcal Exotoxin.—By special cultural methods it was found that when gonococci were grown on a medium rich in animal nucleoprotein, approximately one-third of the isolated strains developed polar bodies which could be demonstrated histologically by staining methods identical with those employed in the case of *Corynebacterium diphtheriæ*. The polar bodies were composed of alpha-nucleoprotein and beta-nucleohiston, and clinical experiments had shown that both these, especially beta-nucleohiston, were antigenic and relatively non-toxic. Separation of the polar bodies was effected either by the employment of human serum or with 2 per cent. saline solution, the former being the least wasteful method. For intra-urethral use the saline or serum washes were standardised so that the nucleoprotein of 500,000 million organisms was contained in 15 c.cm. To this was added 5 per cent. sodium taurocholate and the reaction brought to a pH of 7·2. For intradermal, subcutaneous, and intramuscular administration the same serum or 2 per cent. salt emulsion of polar bodies or their products was used, but standardised to represent 1000 million per c.cm.

Gonococcal Endotoxin.—To prepare this strains were used which did not throw out the polar bodies employed in the exotoxin preparations—i.e., roughly about 66 per cent. of those isolated. The culture after treatment yielded a product of albumoses which was made up to a strength representing the product of 250 million gonococci in 1 c.cm., the diluent being chemically prepared colloidal silon. The effect of an intraurethral injection being to produce in a quiescent gonococcus carrier a temporary activity, with the appearance of gonococci in the urethral discharge, the endotoxin used in this way acted as a test of cure, but was also used in certain cases to stimulate a reaction in the course of treatment.

With regard to the clinical application of the treatment the speakers said that as soon as a case was diagnosed routine local treatment was begun, consisting of irrigation, followed by an intraurethral instillation of exotoxin which the patient was instructed to retain as long as possible. At the same time intradermal and intramuscular injections of the vaccine were given, each with an initial dose of 0·2 c.cm., or 200 million gonococci. In an average case the injections were repeated at ten-day intervals, the intramuscular dose being gradually increased. The intraurethral instillation was repeated as soon as the pH of the urine became optimal, and subsequently, whenever urethral smears showed the presence of gonococci, throughout the course of the disease. When a cure was clinically obtained, an intraurethral injection of 1 c.cm. of endotoxin was given. If no relapse then occurred after seven days' observation the patient was allowed to leave hospital.

In the last part of their paper Major Lambkin and Major Dimond referred to the question of polar body production in organisms other than the gonococcus—e.g., in tubercle bacilli (bovine), staphylococci, streptococci, pneumococci, and *Bacillus influenzæ*. As in the case of the gonococcus, if vaccines had been cultured upon media providing for detoxication during the period of subculture, and if means were taken during the process of manufacture of the vaccine to prevent further development of toxin, it was noteworthy that there was a complete absence of the negative phase following the administration of such vaccine, as compared with the marked negative phase resulting from vaccines prepared from strains which did not produce polar bodies. They suggested the possibility that in administration of vaccines the negative phase might be due to the liberation of endotoxin from the early digestion of the cytoplasm of the organism, the positive phase occurring later as a result of the liberation of the antigenic complexes present in the polar body fraction of the organism. If this was a true explanation, the negative phase occurring as a result of vaccine administration did not appear to be necessary to the development of the ameliorative positive phase—a conclusion which was confirmed by the fact that it was possible with properly detoxicated polar body producing strains of all organisms to bring about immediate positive phases with clinical improvement. This had been their experience after 18 months' employment of the toxin-free gonococcal vaccine, provided every precaution was taken against the elaboration of endotoxin during manufacture.

Colonel HARRISON said that early publication of a method involved a risk that, if it did not fulfil the hopes at first entertained, some discredit might fall on the authors. He wished, therefore, to say that he had induced Major Lambkin and Major Dimond to publish their work though they themselves regarded it as too immature. He wanted to increase the number of workers in this new line of vaccine therapy. The workers in his department at St. Thomas's Hospital had reached the productive stage so recently that he could not yet say much about results. Dr. J. O. Oliver had inoculated a number of non-gonococcal subjects, and had found that the complement fixation reaction of their sera was raised from negative to strongly positive by only three injections of the vaccine, so that it appeared to be antigenic. There had been one brilliant result in a case of gonorrhœa which cleared up in a few days and had so far not relapsed in spite of attempts to provoke a return. The other cases treated on the Lambkin-Dimond plan had behaved much as the average of the Woolwich cases. In all of them the discharge had ceased more quickly than usual though there had been some relapses.

The PRESIDENT said that he had long felt that gonococcal infection must be approached through the blood stream as well as locally.

Major LAMBKIN, in the course of his reply, said that probably any polyvalent vaccine was a toxic vaccine.

The PRESIDENT (Mr. DAVID LEES) then opened a discussion on

THE PLACE OF BISMUTH IN THE TREATMENT OF SYPHILIS.

He began by summarising the observations he had made on the treatment of over 6000 cases with bismuth. In some of these cases bismuth was the only drug used; in others it was used in combination with drugs of the arsenobenzol series and with tryparsamide; in others, again, it was administered with mercury and some form of iodide. A large number of different bismuth preparations were available, but the preparation which, in Mr. Lees's view, gave the most consistently good results with the least likelihood of upsetting the patient was one of insoluble bismuth in a very fine suspension in isotonic glucose solution, given intramuscularly. Administered in this way the injections were remarkably free from pain and from toxic side-effects, and in this respect bismuth was better tolerated than either arsenic or mercury. Although bismuth was more rapid than mercury in its destructive action on the *Spirochæta pallida* in vivo, it was not so rapid as the salvarsan group of drugs. After the administration of a potent dose of an arsenobenzol product, a living spirochæte could rarely be found 24 hours later in the surface lesion, whereas after a potent therapeutic dose of almost any bismuth preparation spirochætes could often be demonstrated for three or four days subsequently. In its effect on the surface lesions of syphilis in all stages, however, bismuth was almost as efficient as the salvarsan preparations, and was much more rapid than any of the mercurial preparations. In three of his own cases, each of which was in the nature of a hypertrophic papular syphilide of a recurrent type, the administration of bismuth rapidly cleared up the eruption when arsenic in one case, and arsenic and mercury in combination in the two others, had previously failed to do so. The effect of bismuth on the serological reactions in all stages of syphilis was less marked

than that of the arsenobenzols, but more marked than that of mercury.

Mr. Lees was firmly of opinion that in the treatment of syphilis in all its stages, except possibly in pregnancy, it was advisable to administer arsenic and bismuth together rather than separately. The joint administration of these drugs was comparatively safe and was well tolerated, while the results in the large majority of cases were highly satisfactory. Other advantages in the use of bismuth were that it was peculiarly effective and safe in most of the cases which showed intolerance to the arsenicals and to mercury; that in some cases of neurosyphilis and congenital syphilis it apparently gave better results than either arsenic or mercury in clearing up the symptoms and signs of disease; and that it was also undoubtedly a safer means of treatment of any patient with advanced organic disease, whether the latter were due to, or was intercurrent with, syphilis. It was important, however, in his view, that in every case of syphilis in its earlier stages a combination of either arsenic or bismuth, or arsenic and mercury, should be given, and that this combination should be continued up to the point of tolerance until both the clinical and the serological manifestations were cleared up. In the subsequent period of treatment he thought both drugs should still be continued, but the amount of the arsenical drug might then be conveniently lessened, with a view to avoiding intolerance. In any case, apart from cases of intolerance to other drugs, bismuth, valuable as it was, was only an adjuvant to the treatment of syphilis, and should not be used alone, even in the very earliest cases of infection.

Dr. J. C. BUCKLEY (Nottingham) considered the introduction of bismuth in treatment of syphilis second only in importance to the discovery of the arsenobenzols. In one case of his, that of a boy with interstitial keratitis, the condition grew worse after 5·5 g. of novarsenobenzol. Then intramuscular bismuth was given, and improvement took place quickly. The practice of giving the drugs separately, one after the other, as advised in America, had not worked well in his clinic. Dosage was a difficulty; in his experience a blue line occurred on the gum after 2 to 3 g. of bismuth.

Dr. MARY MACNICOL (Edinburgh) regarded bismuth as only an adjuvant to the arsenobenzols, but would certainly give it second place in treatment and relegate mercury to third place. She had found it useful where the Wassermann reaction remained positive after prolonged courses of novarsenobenzol and mercury. She had found that cases of congenital syphilis while clearing up well clinically on arsenic and mercury kept a positive Wassermann reaction until bismuth was exhibited.

Colonel E. T. BURKE (Manchester) said that in his view bismuth was only second in value to arsenobenzol, and was far superior to mercury. For more than two years he had entirely discarded the use of mercury except in those comparatively rare cases which exhibited an absolute intolerance to every arsenical preparation. In such cases, however, bismuth was used instead of arsenic in conjunction with the mercury. He agreed with Mr. Lees that bismuth should not be employed as a substitute for arsenobenzol in the average routine case, but rather as a reinforcement. He believed, however, that these two highly spirochæticidal drugs should not be administered concurrently, owing to a very real danger either that the tissues of the patient might refuse to produce the lethal toxalbumin in sufficient quantity, or that the *Spirochæta pallida* might acquire a resistance to the action of the toxalbumin. With regard to both arsenic and bismuth therapy, it was essential to bear in mind that the curative agent was produced by the tissues into which the element had been introduced, the blood being merely the distributor of the toxalbumin produced by the tissues. The fact that arsenic and bismuth belonged to the same group in the periodic table might be significant; there was a possibility that one might have a neutralising effect upon the other. So far as he could judge, it was more scientific to give arsenic and bismuth in alternate courses, since in this way the spirochæte was not allowed time to develop an immunity to either. Another valuable property possessed by bismuth was its effect upon syphilitic lesions of the circulatory mechanism of an organ. It was not unusual to see cases in which the administration of arsenobenzol for syphilitic involvement of the coronary arteries had brought about such rapid healing that the vessels became sclerosed so quickly as to prevent compensations. In syphilitic, coronary, and aortic root disease it was wise to withhold arsenobenzol and to begin with a prolonged attack with bismuth, or even, if the involvement was very severe, to continue with bismuth alone. It was, he thought, a sound general principle to withhold arsenobenzol in the presence of an acute syphilitic process in an important organ until the virulence had been considerably reduced with bismuth. For the same reason in newly born syphilitic children he began with bismuth inunctions, the preparation used being suspensol bismuth cream, in which the element was in its colloidal form. So far the results appeared to be immeasurably better than with mercury and as good as with arsenic. He had also found bismuth of great use in the treatment of interstitial keratitis, arsenic being administered only after the eye condition had cleared up.

Dr. W. R. SNODGRASS (Glasgow) said that his experience with some 2000 cases of syphilis led him to agree in the main with the conclusions of Mr. Lees. Bismuth had, however, only been on trial for five years, and the ideal preparation for use had not yet been determined. From his own personal experience he agreed that for general use metallic bismuth in isotonic glucose solution was undoubtedly the most satisfactory preparation so far available. All the resources of modern chemotherapy should now be employed to determine whether the best results would come from attempts to increase the tolerance of the body to metallic bismuth, or from the manufacture of some chemotherapeutic drug which would give an enhanced effect. A systematic attempt had been made during the last three years to synthesise a product more active than the metal, but although three drugs had been found to give good clinical results—bismuth gluconic acid, bismuthyl saccharic acid, and the sodium salt of bismuthyl saccharic acid—they had so far failed to improve on the metal. Other lines of research might also be followed—e.g., the pharmacology and toxicology of bismuth, its spirochæticidal action, its effect on the immunity of the body, and its toxic effects. The quantity of a standard bismuth preparation necessary to effect and maintain a clinical and serological cure might be carefully worked out. The time-factor was also of great importance. No final conclusions could as yet be drawn about bismuth, and caution was needed in regard to the criteria of cure. Further serological work might alter the points of view. Up to the present he had noted serological relapses and the development of neurosyphilis during treatment with bismuth. He employed the drug in combination with salvarsan or its substitutes, and/or iodides given either orally or intravenously. He also used it extensively in periods intervening between other drugs. In only a few cases of latent syphilis nothing but bismuth had been employed throughout an extensive period of time, these cases so far having yielded equivocal results. He thought bismuth was most helpful in cardiovascular syphilis, neurosyphilis, visceral syphilis in the absence of massive gummata, syphilis in debilitated individuals, and in those who had some concomitant degenerative process, or some coexisting subacute infective condition. No case of syphilis treated by bismuth at the clinic of the Western Infirmary of Glasgow had yet been discharged.

Colonel HARRISON said that there was a danger that a greater therapeutic power might be attributed to bismuth than it really possessed; in early cases its use to the exclusion of arsenobenzol might easily

esult in the patient remaining infective unnecessarily ong. He therefore felt critical, though bismuth was eing used at St. Thomas's Hospital almost exclu-ively in place of mercury. More work was certainly eeded, in particular to determine the best dosage nd the best chemical compounds. Experiment indi-ated that bismuth either restrained the spirochætes rom developing or prevented the tissues from eacting. There was quite a lot of work to show that ismuth destroyed the spirochætes in the tissues, ut judgment should at present be suspended. ismuth seemed to be better tolerated than mercury, ut it was well to remember that there were other igns of intolerance than stomatitis and albuminuria. ome patients complained of curious aches and pains ; hese might easily be attributed to any other cause han metallic poisoning, but they came to an end when he remedy was stopped and sodium thiosulphate was dministered. Another toxic effect was colitis, hich had been clearly due to bismuth in one of his ases. Although bismuth did not seem to irritate he skin unduly, he had seen at least one case in hich it lit up a dermatitis in a patient who had ormerly suffered from this complaint following rsenobenzol treatment. Nevertheless, he liked ismuth particularly well for the treatment of neuro-yphilis and of cardiovascular syphilis, and also n cases where he thought that enough arsenobenzol ad been administered and where he wanted to give hat Dr. Burke had described as an arsenobenzol oliday. He did not agree with Dr. Burke in relying ntirely on bismuth in cardiovascular syphilis. Whilst dmitting that such cases—particularly those of nyocarditis—required great care in the administration f arsenobenzol, he had found that such a remedy s sulfarsenol, in very small doses twice weekly, ave good results in severe syphilitic myocarditis.

Discussing the comparative effect of bismuth and ercury on the serum reactions, Colonel Harrison escribed two series of sero-positive, primary, and early econdary (up to and including the lenticulo-papular age) cases, both of which received about the same nount of arsenobenzol (5 g. of "914" in not less han four months). In addition to this the mercurial eries received not less than gr. 6 of mercury by ntramuscular injection, and the bismuth series received n average of 3·6 g. per case. The serological results ere as follows :—

N.A.B. + Mercury Series : 158 *Cases.*

15·8	per cent. were	+ + or +	at end of course.
8·8	,, ,,	doubtful	,, ,, ,,
75·3	,, ,,	negative	,, ,, ,,

N.A.B. + Bismuth Series : 124 *Cases.*

12·1	per cent. were	+ + or +	at end of course.
15·3	,, ,,	doubtful	,, ,, ,,
72·6	,, ,,	negative	,, ,, ,,

From this it would be seen that although there ere fewer frankly positive reactions at the end of the ourse in the bismuth series, there were also fewer eanly negative ones. The comparison was not rictly fair, but the cases were as nearly as possible exactly the same stages in both series ; these stages ere quite susceptible to treatment, and the amount arsenobenzol in both series was the same.

Dr. STOPFORD TAYLOR (Liverpool) said that it was xtraordinary that a drug like bismuth should roduce toxic reactions. He had had one patient ho was given arsenic and bismuth and developed iarrhœa, a morbilliform rash, and gingivitis. On opping the bismuth the condition had cleared up. e did not believe that the blue line on the gums ontraindicated administration of bismuth, provided ilton or some similar gargle were given.

Dr. W. H. BROWN (Glasgow) wondered if cutaneous uptions during administration of bismuth might e due to retained depots of bismuth, causing a sort sensitisation. He considered that arsenic followed y bismuth, but not the two together, was the ideal ethod of medication.

Reviews and Notices of Books.

JERVIS ON CORONERS.

Seventh edition. Edited by F. DANFORD THOMAS, Barrister-at-Law, Coroner for the Liberty of the Tower of London. With an historical introduction by F. J. WALDO, M.A., M.D., Coroner of the City of London and Borough of Southwark. London: Sweet and Maxwell. 1927. Pp. xvi. and 364. £1 1*s*.

HIS brother coroners will give a warm welcome to Mr. Danford Thomas's new edition of "Jervis on Coroners," first published by Sir John Jervis nearly a century ago and last revised in 1898. Dr. F. J. Waldo's historical introduction is accurate and in every way admirable. Mr. Danford Thomas has collated the various Acts, rules, and orders, and has added explanatory notes judiciously. He has, for example, an excellent summary of what coroners call "no inquest cases"—cases now governed by Section 21 of the Act of last year. These are explained to be of two classes. The first comprises those deaths where no post-mortem examination is ordered, the medical attendant of the deceased giving the certificate of the cause of death with the coroner's permission. In this class come sudden deaths in the street or in a public conveyance or hotel where medical knowledge of the deceased during life provides a natural cause of death ; deaths in private houses where the doctor in regular attendance may not have seen the patient recently, perhaps through absence on holiday of doctor or patient ; and deaths in mental institutions or in those cases which must be reported to the coroner in accordance with law. Here the coroner, after full inquiry by his own officer, may—if he is satisfied that there are no circumstances of suspicion—signify to the doctor that he sees no objection to the certificate of the cause of death being given as the latter suggests. The coroner then sends the "pink form A" to the registrar, who thus becomes aware that the coroner has been informed of the death. The second class of "no inquest cases" is that in which a post-mortem examination is ordered under Section 21, and the coroner sends the registrar (upon the "pink form B") the cause of death as disclosed by the report of the examination. Here, as Mr. Danford Thomas rightly remarks, a grave responsibility is thrown upon the coroner, who will doubtless make careful inquiries through his officer of all the circumstances, and who will have familiarised himself with the character, attainments, and reputation of the medical practitioners of his district.

Other passages in which the learned editor has made helpful comments are those dealing with medical privilege, deaths under medical treatment, and deaths from or under an anæsthetic. A valuable feature of the book is the collection of Home Office circulars which contain much that the medical profession—if not, indeed, also the general public—is entitled to know. The recent statutory rules and orders appear to be printed *in toto*, though the Orders in Council of July 25th (which bring to an end the Admiralty coronership and the royal right of appointment in the Isle of Wight) were issued too late to be included. The Cremation Regulations of last May, which have their place in the network of arrangements to prevent foul play being undiscovered, seem not to be prominently mentioned and explained as part of the new machinery ; but they are referred to in a separate passage dealing with cremation. If so small a point may be mentioned, the chapter number of the Burial of Drowned Persons Act of 1808 might preferably be printed as 48 Geo. 3 c. 75 rather than as c. lxxv., which suggests a local Act ; and in connexion with this statute it might be worth while to explain that the overseers are now abolished and their powers transferred elsewhere. But these are trivial matters hardly to be named where there is so much to praise. Nor should a review of the new "Jervis on Coroners"

appear in the pages of THE LANCET without a reference to the frontispiece, which shows Thomas Wakley, M.P., coroner for West Middlesex from 1838 to 1862 and founder of this journal, holding a parish inquest, with Charles Dickens (who occasionally attended his courts) standing by his side.

SCIENTIFIC NUTRITION IN INFANCY AND EARLY CHILDHOOD.

By STAFFORD MCLEAN, M.D., and HELEN L. FALES, B.S. New York. Philadelphia and New York: Lea and Febiger. 1927. Pp. 404. $3.

THE authors of this book have made a worthy contribution to an important side of literature. They have succeeded in combining a scientific treatise on the physiology of nutrition in the young, with a lucid and comparatively simple account of the various methods by which the physiological principles can be applied. The greater part of the book is devoted to the normal child or to minor disturbances, marasmus being treated rather shortly. The point of view that is held and stressed by the authors is that the calorie requirements of undernourished children are higher than those of the normal; they advocate a larger allowance of nourishment than is frequently given, and they attribute the success obtained by concentrated feeds such as butter-flour to the psychology of the pediatrist, who habitually prescribes them in amounts which give a higher calorie intake than they would offer in simple dilutions. The last part of the book deals with some digestive disturbances and the chemical pathology underlying them. The account of cœliac disease differs in some respects from that accepted by most English pediatrists. The authors recognise two types of cases: (1) those who are allergic to cow's milk and merely require its withdrawal, and (2) those who show intolerance to carbohydrate rather than to fat, the last type comprising the majority. A useful compendium contains numerous details of calorie values and feeding formulæ.

PHYSICS.

A Short History of Physics. By H. BUCKLEY, M.Sc., F. Inst. P., Hon. Secretary of the National Illumination Committee of Great Britain; Assistant in the Photometry Division of the National Physical Laboratory. London: Methuen and Co., Ltd. 1927. Pp. 263. 7*s.* 6*d.*

IT is 50 years since a book on these lines was attempted and the time is opportune for such a historical survey. The author is to be congratulated on the clever way he has arranged that the sequence of his subject matter fits into the chronological order of scientific facts. This arrangement has been so successfully accomplished that, although the reader passes in successive chapters through the Corpuscular and Wave Theories of Light the Atomic Theory of Matter, the Elastic Solid Theory of Light Magnetism and Electricity, and so on, he nevertheless feels an orderly sequence running through the whole text. The book is attractively written, with numerous quotations from the classics of scientific method. It is not complicated by mathematics, but sufficient references are to be found to original works dealing with this aspect of the subject. The book should be widely read, for the work is admirably done.

Spectroscopy. Third edition. By E. C. C. BALY, C.B.E., M.Sc., F.R.S., Grant Professor of Inorganic Chemistry in the University of Liverpool, Fellow of University College, London. In four volumes. Vol. II. London: Longmans and Co. 1927. Pp. 398. 18*s.*

WHEN the first volume of Prof. Baly's work appeared it was stated that the subject would be completed in Vol. II. We are now told that Vol. III. and Vol. IV. will follow. If, however, the subject is treated in Vol. III. in the same detail as in Vol. II. a continuance of this geometrical progression must be anticipated. The volume under review contains only five chapters—one on interference methods one running into no less than 123 pages on method of illumination, and one on the nature of spectra fluorescence and phosphorescence, and the photography of the spectrum. The work should prove an invaluable reference book; it keeps up the high level expected of the author who does not seem daunted by the vista of work before him.

The Mechanics of the Atom. By MAX BORN Professor in the University of Göttingen. Translated by J. W. FISHER, B.Sc., Ph.D., and revised by D. R. HARTREE, Ph.D. London: G. Bell and Sons, Ltd. 1927. Pp. 317. 18*s.*

THIS book may be looked upon as a counterpart to "The Structure of the Atom," by Prof. Andrade, who is the editor of this, the second book of the series of "International Text-books of Exact Science." Whereas in Prof. Andrade's book the purely physical aspect of the subject was insisted upon throughout, in this book the approach is rather from the mathematical side. This is inevitable where different types of motion have to be scrutinised, perhaps invented, to see to what extent they can satisfy the phenomena which appear when atomic structures are put into motion. The outstanding problem to be solved is the nature of the motion that the atom in its component parts must have to account for all the varied phenomena which have been revealed in the last 25 years. We hardly know which most to admire, the ingenuity of those who have devised experiments to glean the facts or the subtlety of suggestion underlying the efforts of the mathematician to explain the phenomena observed. This book gives a good idea of the range of this side of the work, and should be studied by those whose knowledge of mathematics is fairly advanced.

JOURNALS.

JOURNAL OF INDUSTRIAL HYGIENE, August.—Three articles of some importance appear in this issue of the journal. The first deals with the occurrence of tuberculous silicosis among granite workers in United States. Dr. W. McFarland, the writer, is a medical officer and writes with intimate knowledge of the industry and of the condition induced by exposure to dust among the men; about one-third of the granite is composed of quartz or silica. The article is illustrated by eight good X ray pictures. Dis agreement is stated with the thought that tuberculous silicosis is less infectious than ordinary pulmonary tuberculosis. The second article, which comes from the Harvard School of Public Health, is in continuation of prolonged research into the toxicology of zinc, and deals with threshold doses which will cause metal-fume fever or brassfounders' ague. A formula is arrived at for expressing these threshold doses of zinc oxide. No cumulative pathological condition seems to follow long industrial exposure to zinc fumes. The third and longest article is concerned with the manufacture of electric accumulators and with risk therefrom of lead poisoning. The author is Dr. A. Hamilton, who has inspected the industry in America, in Great Britain, and in Germany; she describes and contrasts the technical processes involved and the risk in the different countries arising from inhaling dust of oxides of lead. The risk can be avoided by care and forethought, which is exerted in Europe through enforcement of regulations by skilled inspectors. In the United States such expert supervision is not yet being exerted, and superexcellent conditions (due to individual initiative) may be found in one factory to be counterbalanced by a shocking lack of all care in another. From this point of view the article is one of great interest.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 10, 1927.

DE OFFICIO CORONATORIS.

THE publication of a new edition of "Jervis on Coroners" is an event not to be passed over in silence. That classic work, which we review on another page, partakes of the immortality and indispensability of the office which it describes. Its present re-issue was made necessary by recent changes in the law—changes so clearly desirable that even an independent legislative body like the Parliament of the Irish Free State has adopted them freely for its own administrative purposes. The new laws are already at work in England, tightening up the machinery for the registration of deaths and protecting the public by more closely supervising the disposal of dead bodies. Minor changes are making themselves felt. Franchise coronerships are beginning to disappear; the Admiralty coroner has been abolished; His Majesty has relinquished his right of appointing a coroner for the Isle of Wight; and the same process will gradually be applied as vacancies occur in the Duchy of Lancaster, which possesses scattered franchises wherever John of Gaunt planted a castle and established an area of peculiar jurisdiction. Amongst other useful administrative provisions which were enacted in the Coroners (Amendment) Act of last year will be recalled the power to accept the verdict of the substantial majority of the jury, the power to invite specially qualified practitioners to make post-mortem and special examinations, the arrangements for avoiding unnecessary inquests and for ending the duplication of criminal investigations when a coroner's court and some other court are pursuing parallel inquiries into the same death.

All these recent changes in the law, which increase rather than restrict the service of the coroner to the community, preserve the continuity of an ancient institution in true British fashion. Coroners were established—or at least their duties were defined—as early as 1194, when they first appear as keepers of the King's pleas. They have shed, it is true, some of their antique functions in the passing of the centuries. They no longer exercise the larger criminal and even civil jurisdiction which was theirs in the Middle Ages. They are no longer concerned with inquiries into the various royal interests in wrecks and sturgeons, the forfeiture of felons' chattels and the confiscation of deodands. Malefactors can no longer take sanctuary in a church; so it is no longer necessary to summon the coroner to parley with them and put them to the choice of either submitting to trial in the courts or undergoing the picturesque alternative of abjuring the realm.

But the chief duty of the coroner remains to-day, as it was in the beginning, the holding of inquests on the bodies of persons who have died by violence or accident or in suspicious circumstances. BRACTON'S famous treatise, transcribed in the apocryphal statute *De Officio Coronatoris* of 1276, laid down that duty in terms which are the foundation of our law to-day. The coroner is to go to the places where any be slain or dead (or where treasure is said to be found) and he is to inquire upon the oath of men of the vicinity if they know where the person was slain, whether it was in any house, field, bed, tavern, or company, and who was present. Likewise it is to be inquired who were culpable and those found culpable are to be taken and delivered to the sheriff and committed to the gaol. Being officers of the King and yet elected by the men of the county, the coroners formed a direct link between Crown and people; they were a check upon the intermediate lords. The coroner's court is essentially the people's court to-day. The neighbours can come and say their say without fear or favour; they play their part in the English scheme of public safety. As is natural in what is essentially a roving inquiry unconfined to narrow issues of the guilt of a particular person arraigned upon a definite charge, the inquest tolerates all kinds of evidence and sifts it for the purpose of the formal accusation which may follow. Presided over with tact and understanding, the court performs an essential service with singular success. As Dr. F. J. WALDO observes in the historical introduction which he has contributed to the latest edition of "Jervis on Coroners," the gradual growth of the coroner's office has beyond doubt made throughout the centuries a considerable contribution to the protection of the lives of our countrymen. We may add that the continued usefulness of that ancient office is a tribute not only to its own merits but to those of the men who have occupied it in the past and who occupy it to-day.

THE BACTERIOPHAGE.

THE phenomenon of bacteriophagy was brought into prominence about ten years ago by F. D'HERELLE, working at the Pasteur Institute in Paris. Credit is therefore due to D'HERELLE for his work and for his persistent attempts to elucidate the mysteries of the phenomenon which is commonly linked with his name. But, as with so many discoveries which break new ground, subsequent delvings into literature have shown that others had explored districts of the new territory and had examined portions of it, though none had succeeded in defining its outlines. F. W. TWORT, in this country, had described an analogous phenomenon which he encountered when engaged in certain researches upon ultramicroscopic viruses, and his name is consequently associated with that of D'HERELLE in descriptions of the phenomenon, although D'HERELLE maintains that the Twort phenomenon is a kindred but distinct one. This view is not shared by many bacteriologists, although few have attempted to reconcile the differences; in the history of pathology both workers are sure of credit. E. HANKIN, as long ago as 1896, discovered an elusive "antiseptic" principle in the water of the Jumna, manifested by its power of destroying many species of bacteria but especially the cholera vibrio; this action was destroyed by boiling, and he attributed it to a volatile body. It is now believed to be an instance of bacteriophagic action. Others noted the occasional occurrence of cultures whose early growth was succeeded by disappearance and dissolution of the organisms, an event which was vaguely dubbed autolysis, but seems to have attracted little attention after it had been named. Many such cases may have been examples of bacteriophagic action. Briefly, the phenomenon consists in the dissolution of bacteria when a substance, known as the bacteriophage, is added to a live culture which, in general, should be young and actively growing. This agent is widely diffused in nature and was discovered by means of an experiment, now classical, in which D'HERELLE added some filtered, and therefore sterile, fæcal material from a patient suffering from bacillary

dysentery to a tube of broth which had been inoculated with the *B. dysenteriæ* Shiga. Instead of showing a growth of the organism the medium after incubation appeared to be sterile. When a quantity of a fresh culture of the bacillus sufficient to produce a visible turbidity was added this disappeared after further incubation and the broth again became clear. D'HERELLE seized upon the idea that he had encountered "a virus pathogenic for the bacterium" and upon this assumption he proceeded to investigate the phenomenon further. Nothing that has happened since has served to shake his faith, and for him the dissolving principle is a living ultramicroscopic virus, a "filtrable organism parasitic of bacteria." The fact, paramount amongst many, which led him to this conclusion, and which has caused such intense interest to be taken in the bacteriophage, is that it becomes regenerated in the course of its action and the phenomenon of solution of the bacteria is capable of unlimited repetition in series. The destructive action can also be demonstrated in surface cultures where, when the active agent is suitably diluted, it produces round areas of bareness in the midst of a flourishing field of bacterial growth; these areas D'HERELLE has designated the "colonies" of the bacteriophage.

From the point of view of the general reader the subject raises at least two interesting questions; one is the real nature of the agent, and the other the possibilities of a practical application of the phenomenon. It is upon the first of these problems that most attention has been lavished and the dispute has been keenly waged without anything approaching general agreement having been reached. D'HERELLE has always stoutly stood for a living organism, abnormal and parasitic towards the bacteria with which it is associated and by means of which its presence is demonstrated. This is a thesis which, in the case of an invisible particle capable of apparent multiplication and regeneration is one not easy to attack, and although the attempts have been many they carry little conviction. The phenomenon has been attributed to autolytic enzymes, to a diseased condition of the bacteria induced by external influences—the "hereditary nutritional vitiation" of Bordet—and to the destructive action of particles of bacterial protoplasm; theories have been propounded by numerous workers with varying modifications, all more or less obscure since they strain mechanistic ideas to account for phenomena which are quite outside the range of common experience with chemical and physical factors. What are the criteria of life? The answer given by D'HERELLE is the possession of the properties of assimilation—the transformation of grass, by the sheep, into "sheep substance"—and adaptation. In the multiplication of the bacteriophage D'HERELLE sees the former—a view with which his critics may well disagree. As regards the power of adaptation there is general agreement that the substance is of a plastic nature and its virulence for bacteria can be augmented or altered; it shows also a definite adaptability towards other changes of external conditions. Prof. PRAUSNITZ, who after careful consideration adopts D'HERELLE'S view of a living organism, concludes, from the experiments detailed in the lecture published elsewhere in this issue, that the dimensions of the bacteriophage particles are in the vicinity of 20 $\mu\mu$; this is about a seventh of the size of the smallest known pathogenic microbe, that of bovine pleuro-pneumonia, and one-fiftieth of the diameter of the staphylococcus. In this estimate of size Prof. PRAUSNITZ is in close agreement with the conclusions independently arrived at by V. ANGERER by an optical method. He speculates whether so minute a body can carry out the complex functions of life. The dimensions given are well above those which theoretical calculations have shown to be the smallest at which life can be conceived to exist, and the experiments recorded upon the properties of the bacteriophage prove it to conform to the criteria which PRAUSNITZ sets up. One of these is the occurrence of random variability in the activity of the so-called organism, whilst the other is its adaptability to environmental alterations, a fact upon which D'HERELLE has likewise greatly insisted. Here the matter stands for the present. It is difficult to admit that such a phenomenon may be due to a living virus since it introduces a new conception. We have long been accustomed, quite irrationally, to regard bacteria as the smallest of living bodies limiting our purview to the accidental powers of the immersion lens and to shut out of our minds the possible existence of still smaller bodies leading individual or parasitic lives. Whatever the nature of the bacteriophage may ultimately prove to be, the phenomenon shows that large molecular groups upon the borderline of what we call life may possess some whilst lacking other of its attributes which we find so difficult to define.

The other and more immediately practical side of the problem is what functions, and especially what useful functions from man's point of view, the agent or organism may perform. D'HERELLE considers it utilisable in the treatment of bacterial infections and an important, if not the most important, factor in the rise and fall of epidemics. For him the decline of an infection, or the cessation of an epidemic, is in many cases due to the appearance of a bacteriophage active for the organism in question, which in a short space of time produces so great a mortality amongst these as to reduce them to impotence. He makes large claims for the termination of epizoötics by the introduction of a suitable bacteriophage amongst herds and flocks and for the treatment and cure of many types of human infections, more particularly of the intestinal ones, by such means. Here the outside confirmation of his results is exceedingly scanty and even in the favoured conditions of the test-tube the bacteriophage does not seem able to effect a *therapia sterilisans magna*. There are many other points in connexion with this fascinating subject upon which it is impossible to touch, such as the well-known decrease of bacteria in stored waters, the changes which occur in sewage, and the possible influence of so destructive an agent in ordinary bacteriological examinations. The many problems of this nature which await solution are intimately bound up with that of the essential nature of the bacteriophage, and here again the importance of pursuing what is sometimes rather depreciatingly called "academic research" becomes manifest.

STIMULANTS OF THE UTERUS.

WITH the end of August, 1927, comes the legal enforcement of a uniform strength for all preparations of pituitary extract sold in this country, an international conference, which met two years ago in Geneva under the presidency of Dr. H. H. DALE, having made arrangements for a common standard of reference to be adopted by all countries. The strength of the preparation is to be stated in units, the unit being defined as the amount of activity present in 0·5 mg. of the standard. The preparations on the market for the most part contain 10 units per c.cm.; if a

dose of 2 units is required the doctor must measure 0·2 c.cm. or 3·5 minims of the standardised solution. Now that uniform potency has been established by biological tests on uterine muscle, it remains to investigate and define the limits of safety in clinical dosage. This task has been attempted by the ideal combination for this purpose of an obstetric surgeon working with a pharmacologist. Mr. A. W. BOURNE and Dr. J. H. BURN have described in the summer number of the *Journal of Obstetrics and Gynæcology of the British Empire* (vol. 34, No. 2, p. 249) the results of joint investigations carried out at Queen Charlotte's Hospital. In order to obtain records of uterine pressure a rubber bag in the form of a hollow disc 1⅝in. in diameter was introduced into the human uterus. The bag was stiffened just sufficiently to prevent it from folding over while being inserted into the uterus by a stout iron wire bent into a ring, and the end of this wire was passed through a gum elastic catheter which was attached to the bag. A piece of rubber pressure tubing 12 feet long joined the other end of the catheter to a recording manometer. By means of glass T pieces inserted in the course of the pressure tubing, and connected with a water reservoir and with hand bellows, the air in the bag could be displaced by water. It was found that this bag could be inserted into the uterus of the unæsthetised patient, between the edge of the os and the membranes of vertex, and gently pushed up along the postero-lateral wall without producing any ill-effects. The results of several observations on 13 women including 11 primiparæ were that in the majority of women in labour a dose of 2 units of pituitary extract is sufficient to produce a definite and sometimes a striking increase in the strength and frequency of the uterine contractions. The effect produced by the injection appears to be of two kinds. In five cases the uterus passed into a mild tonic contraction with superimposed waves of rhythmic contraction. In eight cases, including the multiparæ, there was an increase only in the force and frequency of the uterine contraction, the intermediate relaxation being complete. The records show that it was in cases where the os was not dilated more than enough to admit two fingers that the injection most often produced tonic contraction and that in these, with one exception, it did not produce rapid increase of dilatation; in fact, they provide evidence that the least advantage is obtained when the injection is made too early in the first stage. The observers conclude that where labour is prolonged owing to sluggish pains a dose of 2 units should be of value, provided that, in primiparæ, dilatation is nearing completion. The effect of repeated injections was not studied, but the progress of one case observed indicates that the repetition of injections more than once an hour is not likely to be of any value. As to the dangers of pituitary extract, Mr. BOURNE and his collaborator express conviction that these are due solely to excessive dosage. In their experience a dose of 2 units is safe in any stage of labour in all cases where there is no mechanical obstruction. It was possible to study the effect of administration of pituitary extract after delivery of the placenta in two patients. The uterus was already acting well in both cases and the action of large doses (4 to 10 units) was surprisingly small, but the effect on a flabby or atonic uterus might be much greater.

Practitioners will welcome this quantitative study of results based on graphical records, for where so many factors are concerned as in the estimate of the effect of a uterine stimulant the value of clinical impressions is not easy to assess. As regards pituitary extract pharmacologists and clinicians are at least agreed that the preparations in general use are potent. Not even this measure of agreement is to be found in reference to an older drug, ergot, which many generations of doctors have held to be a most valuable uterine stimulant. The effect on the uterus of the different physiologically active substances to be found in ergot has also been the subject of inquiry by Mr. BOURNE and Dr. BURN, and this part of their work is of especial interest in view of the conflicting evidence on the subject. Attention was called to the urgent need for correlation of pharmacological and clinical findings as to the active principle in ergot as long ago as 1922, at a joint meeting of those sections of the Royal Society of Medicine specially concerned.[1] At this meeting the value of ergot in obstetrical and gynæcological practice was discussed with special reference to its present position in the British Pharmacopœia. Briefly, the situation is as follows. In accordance with an international agreement as to the method of preparing liquid extracts, the popular official liquid extract of ergot has since the 1914 issue of the B.P. been a watery, whereas it was formerly an alcoholic extract. The extract as now prepared contains little or none of the specific alkaloid, ergotoxin. America has disregarded the agreement and retains the alcoholic extract. This difference of technique is of considerable importance in assessing results, since, whereas the preparation of ergot commonly used in America is one in which the specific alkaloid is retained, British practitioners favour an extract from which the specific alkaloid has been removed in the process of extraction. This anomaly has led to the suggestion that the clinical activity of ergot is due not to the specific alkaloid, but to the presence of the putrefactive bases tyramine and histamine. Some precise method of testing clinical impressions of the efficacy of the various constituents of ergot in stimulating uterine muscle was thus urgently required. Mr. BOURNE'S optimism, expressed at the meeting already referred to, that some useful results might be obtained from an instrumental method of gauging uterine contractions has been justified. Though he and his collaborator have been able to study with the recording apparatus only a small number of cases, their general conclusions have been confirmed by a controlled investigation of clinical reports on normal women in the puerperal state some of whom have been given ergot in different forms.

The results show that neither histamine nor tyramine in the proportions present in the B.P. liquid extract is responsible for the traditional value of ergot, though histamine in large doses (2 mg.) has a relatively powerful effect on uterine muscle. Ergotoxin has a definite effect, not like pituitary extract in intensifying the process already in being, but in the production of a condition of uterine spasm which, though dangerous so long as the child or the placenta remain in the uterus, is admirably suited to the needs of the puerperium. Ergotoxin does not act rapidly, but only in 20 to 30 minutes after hypodermic injection. It is therefore suggested by these observers that a mixture of the two drugs in the proportion of 2 mg. of histamine to 0·5 to 1·0 mg. of ergotoxin might be the ideal agent for the control of post-partum hæmorrhage. The final conclusion reached is that, unlike the official fluid extract of ergot of the U.S.A., the extractum ergotæ liquidum B.P. is a wholly inert preparation and that the pharmacopœial method of preparing the extract should be revised in order that the specific alkaloid shall be present in the extract.

[1] See THE LANCET, 1922, ii., 1274.

Annotations.

"Ne quid nimis."

CONTROL OF MOSQUITOES IN ENGLAND.

THE annoyance caused by the bites of mosquitoes is an aspect of their activities that has not received much medical notice. It is, however, a considerable nuisance in many parts of the country, and a few years ago it became so intolerable in Hayling Island that a campaign against the insects was started in 1920. Mr. F. W. Edwards, of the Natural History Museum, held that in prevailing conditions the brackish-water-breeding mosquitoes *Aedes* (*Ochlerotatus*) *caspius* or *A. detritus* was most probably to blame. The catching and identification of some thousands of the many millions of imagines, which packed every conceivable particle of cover, showed that the latter mosquito was almost solely implicated. The breeding-places, found nowhere in the residential parts, were finally traced, in 1921, to two saline marshes produced by seepage through the sea wall at high tide, and each situated about a mile and a half from the centre of the heavily infested residential district. Clearly, from the density of the insects, this considerable distance was well within the range of flight, affording a marked contrast to the habitual range of the malaria-carrying anopheles. On connecting marsh pools by ditches and emptying the whole system into the sea through sluice gates at low tide Hayling Island was rid of its nuisance.

It all seems delightfully simple, yet the result has actually been due to controlled and intensive research. This has included the collection and identification of thousands of imagines; the lengthy and at first fruitless search for their breeding-grounds; the identification of larvæ in the saline marshes; the determination of the degree of salinity of water in which they will breed (which was found to be as great as that of sea-water) and its hydrogen-ion concentration; the evaluation of larvicides—the usual suffocative petroleum film having been discarded for "a certain sanitary fluid containing 20 per cent. of soluble cresol," which kills in a strength of 1 in 28,000; the regular inspection of "water-places," a conveniently coined synonym for "potential breeding-places"; and, indeed, the collection of every possible scientific detail. All this was made feasible by the institution of the Hayling Mosquito Control with Mr. J. F. Marshall as honorary director and Sir Richard Gregory as chairman. Publicity and education were widely and wisely used. Hostility to the scheme was of course evident enough, and those who showed it had the satisfaction of the last word; for before it was started they pointed out that it could not succeed, and when it succeeded they said that it had been unnecessary.

By the end of 1924 the multifarious work of demonstration and research necessitated larger and more suitable premises, which Mr. Marshall erected at his own expense in the hope that the organisation would be placed on a permanent basis. Through the offices of Sir Richard Gregory, responsibility for the British Mosquito Control Institute was undertaken by a strong council, and about two years ago the building was opened by Sir Ronald Ross. A usefully illustrated report has now been issued covering the whole period. The Institute comprises a demonstration museum, a laboratory with apparatus ingeniously designed to fulfil its peculiar requirements, a photographic room including a specially lighted camera which for the first time reproduces with equal distinctness on the same plate the body-markings and the wing venation of mosquitoes, a library, administrative rooms, and other accommodation for such workers as avail themselves of the valuable opportunities which are here at hand. The scope of the Institute's activities has been widened to include experimental, educational, and research work in connexion with mosquitoes and other noxious insects particularly with a view to control. The directors aim at opening branches in other parts of the country, and wish to collect enough subscribing members to enable the Institute to carry on the work efficiently and to enlarge its usefulness.

THE RELATION OF TRAUMA TO THE LEUKÆMIAS.

TRAUMA is often cited as a factor in the production of hæmopathics. Their alleged causal relation often has to be considered in cases of compensation, and here the problem may be especially difficult, as in the life of most workmen it is easy to discover some history of injury preceding the illness more or less remotely. A case in the Roman law courts, in which a stoker was awarded damages for acute myeloid leukæmia on the ground that it was caused by a small burn of the second degree on the thigh, has led Prof. Salvatore Diez, of the University of Rome, to investigate the whole subject, and the results he has published [1] are interesting from a medico-legal point of view. He has examined all the reported cases, and offers some general considerations on the theoretical possibility that injury may affect the production, development, or course of the leukæmic syndromes.

Leukæmia is undoubtedly a disease of general distribution, not localised in this or that organ, nor apparently originating at any definite point in the hæmopoietic system; it involves the system as a whole, and the cause is presumably one that has a general action. It is difficult to imagine an injury having such an action; even serious damage to the spleen has not been found—except in a few doubtful cases—to give rise to leukæmia; and although both leukæmia and injuries to the skeleton and bone marrow are commonly reported, there is no sufficient evidence of a connexion between them. Thus from probabilities as well as from clinical observations it seems that only when a traumatic lesion is followed by a grave septicæmic process can any relation be maintained between the two conditions in a medico-legal sense. Even if it is admitted that trauma exercises an influence by diminishing the resistance of the organism, its action cannot be regarded as different from that of other agents which render the morbid cause more active and emphasise its effects. The question arises whether such intervention is required for development of the disease. Prof. Diez thinks that it is not. There are already, he says, in the organism the conditions necessary and sufficient to determine the morbid state; the trauma is merely a revealing element—one of those factors which call attention to it. Sooner or later the disease would manifest itself in any case, and the trauma, when the disease is already present, cannot be construed as an aggravation, since in industrial disputes this term implies a violent cause producing substantial modifications in the evolution of the disease such as could not otherwise be verified.

Would it not be right to speak of the relation between trauma and leukæmia as a coincidence? Prof. Diez has collected 30 cases of this supposed connexion, and has divided them into six groups: (1) Eleven cases in which the diagnosis seems erroneous or uncertain, where the data indispensable for sustaining the theory of a relationship are wanting, and which cannot therefore be taken into serious consideration; (2) two in which the long interval between the injury and the first manifestations of leukæmia exclude any relationship; (3) ten in which the very short interval between the trauma and death, or the manifestation, immediately after the injury, of a well-marked form of leukæmia, undoubtedly point to its pre-existence; (4) one in which causes other than trauma may have had an influence over the development of the leukæmia; and (5) six in which it would be hazardous to draw any conclusions for medico-legal purposes, as there was no proof that the disease was not present before the injury. Even slight experience of leukæmic

[1] Policlinico, Medical Section, August 1st, 1927.

affections brings a knowledge of the profound changes that may be present in the blood without functional disturbance, and rapid and progressive development of the disease does not in the least exclude pre-existence of the morbid process. Between the chronic cases and those which are apparently acute from the commencement are those—not very rare—in which the disease, after existing for a time without appreciably affecting health, suddenly begins to run a rapid course, with more or less rise of temperature and progressive deterioration in the general condition. The sudden change is probably due to diffusion or extension of the morbid process to important sections of hæmopoietic tissue, and the recognition of such forms has induced some observers to maintain that there is no ætiological difference between the very acute and the chronic leukæmias. In determining the possibility of a traumatic factor in the ætiology, it is necessary to be able to exclude other factors which can determine the development of the disease. This is difficult, as we are ignorant of what they may be. In the meantime, Prof. Diez considers that the reported cases offer no proof that leukæmia can originate from trauma.

KEY INDUSTRIES: THE CASE OF SPECTACLES.

UNDER the provisions of Section 1, Subsection (5), of the Safeguarding of Industries Act, 1921, and of Section 10, Subsection (4), of the Finance Act, 1926, complaints as to the improper inclusion of articles in, or their exclusion from, the lists of articles chargeable with duty under Part I. of the Safeguarding of Industries Act, as amended by the Finance Act, 1926, have to be referred for decision to a tribunal consisting of the referee appointed by the Lord Chancellor and of two persons selected by the Lord Chancellor from a panel of persons of special scientific attainments appointed by the President of the Board of Trade. The Lord Chancellor has appointed Mr. W. A. Hudson, K.C., to be the referee, and the President of the Board of Trade has appointed the following gentlemen to be the panel of persons of special scientific attainments: Mr. A. Chaston Chapman, F.R.S., Prof. F. G. Donnan, C.B.E., F.R.S., Dr. J. H. Jeans, F.R.S., Prof. F. A. Lindemann, F.R.S., Prof. S. Smiles, O.B.E., F.R.S., and Prof. J. F. Thorpe, C.B.E., F.R.S. The Board of Trade announce that they have received a complaint that spectacles, eyeglasses, and monocles have been improperly excluded from the lists of articles chargeable with duty under the Safeguarding Act as amended. The complaint will be referred for arbitration to a tribunal consisting of the referee, Dr. Jeans, and Prof. Lindemann, and any communications regarding this complaint should be addressed without delay to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George-street, London, S.W. 1.

THALLIUM EPILATION FOR RINGWORM OF THE SCALP.

As a first step in the treatment of ringworm of the scalp it is desirable to remove all the infected hair. This may be done by exposure to X rays or by giving a single dose of thallium acetate, and for young children the second method has undoubted advantages. Thallium is a poison, and mild toxic symptoms often follow its administration. But although the drug has been widely used we are unaware of any case of fatal poisoning, and it seems likely that the treatment has come to stay. Obviously its use requires great care, as we pointed out [1] when the first results were published in this country by Dr. G. B. Dowling and Mr. J. Kelman.[2] The method was introduced in Ireland by Dr. Maurice Drummond,[3] and to the July number of the *Irish Journal of Medical Sciences* he contributes an article which should be useful to those who wish to try it for themselves. A paper by Dr. E. T. Freeman in the same journal is also worth perusal, whilst further comment will be found in the report of a discussion which we publish on p. 550. The chief conclusions which emerge are as follows: (1) the treatment appears to be safe when properly conducted; (2) it is very much cheaper and simpler than epilation by X rays; (3) the child need not be restrained and is never frightened; and (4) permanent alopecia does not occur. Though the technique is simple, the intending operator must faithfully observe the details of administration, which should never be left to a nurse or unqualified person. The contra-indications and the question of repetition of the dose require very careful consideration in every case, experiments at King's College Hospital[4] supporting Prof. A. Buschke's recommendation that a second dose should not be given within two or three months of the first. Administration by the mouth has hitherto been the rule, but Dr. H. C. Semon reports that hypodermic injection of the same quantities is equally effective.

[1] THE LANCET, 1927, i., 449. [2] Ibid., 1927, i., 389.
[3] See THE LANCET, 1927, i., 343.

HEALTH IN OUR FACTORIES IN 1926.

As read in figures of mortality and sickness caused by industrial accidents and diseases, the record for 1926, given in the annual report of the Chief Inspector,[5] is excellent; but its excellence has to be discounted by the extensive closing down of work during the year due to the coal stoppage. The tendency for the small workshop to give way to the larger factory has continued; as has also the tendency for industrial growth to be more rapid in the South-East of England than in the North and Midlands. Of particular industries the motor-car trade, sugar-beet factories, and tin-plate making were developing satisfactorily; but depression and short hours is the more usual story. The chapter dealing with accidents indicates the efforts being made to promote the adoption of safety-first methods; the results in every ease are unchallengeable and of great economic value. Yet the methods spread slowly. Close investigations of the ways in which accidents occur continue to be made, and, as ever, reveal the paramount importance of the personal as contrasted with the mechanical factor. The substitution in metal grinding of abrasive wheels for sandstones continues, reducing at once dangers from bursting stones and from the dust hazard. The granting of compensation to metal grinders with silicosis is expediting this beneficial revolution. The position of the young person in industry receives special consideration; vocational selection on engagement, although far from general, is increasing; young persons are employed for the same hours as adults, but the number employed in dangerous trades is comparatively small. Labour-aiding devices more and more save them from heavy work beyond their strength; but posture at work is seldom considered, either in adjusting the height of the machine to the youth or of the youth by adjustable seats to that of the machine. The sports side of welfare is doing good service. Better instruction on accident prevention to youths is needed. The encouragement of dancing in the dinner-hour caused girls on monotonous repetition processes to work much better. Vocational and general continued education is found to improve craftsmanship and output. Some account is given in the report of advances made in labour-saving appliances—a fundamental factor in reducing unskilled labour and raising the standard of industrial employment and wages; in this direction lies advance in racial improvement. The greater the saving of strenuous and arduous labour, the more efficient and economical is work, and the less the risk of accidents. Dr. J. C. Bridge, who has succeeded Sir T. M. Legge, writes on matters essentially medical. When dealing with lead poisoning he points out that so long as lead is used poisoning will occur; only by use of non-toxic materials can poisoning be eliminated; and the

[4] THE LANCET, 1927, i., 129.
[5] Annual Report of the Chief Inspector of Factories for the year 1926. H.M. Stationery Office. 1927. Cmd. 2903. Pp. 139.

enormous advantage gained from use in the potteries of low solubility or leadless glaze is quoted. Four cases of tumours in the bladder occurred among aniline workers; poisoning from this source is much more frequent in warm than in cold weather. Notified cases of epitheliomatous ulceration due to occupation continue to increase in number; there were 187 with 49 deaths in 1926 as compared with 45 with one death in 1920 when notification was first demanded; mule spinning, 88 cases with 20 deaths, was by far the largest contributing source. Dermatitis among bakers is ascribed to manipulating dough, which is hygroscopic and breaks down the protective horny layer of the epidermis; here, as in other industries, cleanliness and meticulous attention to the skin is the great protective barrier. Several interesting inquiries are recorded, of which the distinctive feature, as against inquiries of past times, is the absence of serious findings; undoubtedly conditions of work to-day are less risky and more civilised. The use of electricity, which means greater risk from shock, continues to increase; but that no increase occurs in electrical accidents is a praiseworthy testimony to expert and skilled forethought in supervision of appliances permitted to be used.

CONCERNING LUMBAR PUNCTURE.

THE discussion reported on page 553 reveals a certain amount of disagreement about the readiness with which lumbar puncture should be done, whether for diagnostic purposes or for estimating the effects of treatment. Of its value for both these purposes there can be no question, but from the patient's point of view the operation is at best unpleasant, and however skilfully performed, it is not altogether free from the risk of uncomfortable after-effects. It is true that fear of the unknown accounts for most of the patient's aversion, and those who have been frequently punctured become almost indifferent; but the after-effects may undoubtedly be very trying, and if lumbar puncture were applied indiscriminately the proportion of cases in which troublesome sequelæ occurred would be considerable. As long, however, as it is confined to cases of organic (or suspected organic) nervous disease, and reasonable precautions are taken, the percentage of patients who suffer any serious discomfort is small. Disseminated sclerosis seems to render subjects particularly liable to rather prolonged headache after the withdrawal of even a little fluid; cerebellar tumours and cerebral tumours in certain situations provide a not inconsiderable risk of death if lumbar puncture is performed otherwise than with the greatest care; but in most other organic nervous diseases —neurosyphilis, meningitis of all kinds, encephalitis, poliomyelitis, spinal tumours, and the like—lumbar puncture is well borne and often gives relief. Where there is no organic nervous disease and no pathological change in the cerebro-spinal fluid, unpleasant after-effects, such as severe headache, nausea, and vomiting, seem to occur rather more often, and in doubtful cases it should always be considered whether the advantages outweigh the possible disadvantages. Syphilitic infection so often affects the central nervous system that it is certainly of some importance to know when changes of a syphilitic nature are present in the cerebro-spinal fluid, though the knowledge gained can make little difference to treatment as long as the Wassermann reaction in the blood is positive. Examination of the cerebro-spinal fluid may be advisable, as Colonel L. W. Harrison points out, when there is difficulty in rendering the blood Wassermann negative, and before any syphilitic patient is discharged from treatment.

The cause and prevention of the untoward symptoms that sometimes follow lumbar puncture are discussed in the *Presse Médicale* of August 13th by Dr. J. Mouzon, who considers that they are due either to hypotension or hypertension of the cerebro-spinal fluid. Hypotension may be brought about and sustained by the escape of fluid into the subdural space and tissues through the puncture in the membranes made by the needle, whilst hypertension is attributable to irritation of the dura, which reflexly stimulates production of cerebro-spinal fluid. In hypotension the symptoms come on at once but are less prolonged; they are often accompanied by muscular weakness, tachycardia with low blood pressure, and oliguria; the effect of posture on the headache is marked. In hypertension the onset is slower and the symptoms last longer; posture has little effect on the headache, and there may be slight mental confusion, and tachycardia without low blood pressure. As means of preventing symptoms after puncture, the head should be kept low and the hips raised by a pillow. All muscular effort by the patient should be avoided during the puncture and for some hours afterwards. When the needle is felt to be through the dura, but the fluid does not flow at once, the needle should only be moved slowly and cautiously after a short interval, and should not be hurriedly withdrawn and inserted again. The fluid often comes slowly at first; it should never be withdrawn quickly, and no more should be taken than is necessary for diagnosis. The patient should lie in the lumbar puncture position for 20 minutes and then be rolled slowly over on to his back. After a few hours his head may be raised with pillows and food can be given, and in 24 hours he may get up. With these precautions, according to Dr. Mouzon, most of the unpleasant sequelæ are avoided.

If these theories of the causation of symptoms are correct, it is clear that the smaller the needle used the smaller will be the likelihood of leakage of fluid, the less the irritation of the dura, and the slower the delivery of the fluid. A fine needle, however, is not strong enough to pierce the skin and ligamentous structures before the dura is reached, at any rate without risk of breaking. This difficulty is overcome by the use of a needle within a needle, the inner one coming into action only after the ligamentum subflavum is pierced. Such needles, Dr. Mouzon says, have been described by Antoni[1] and W. Wechselmann,[2] and he considers that their use greatly minimises the chances of unpleasant symptoms following lumbar puncture, even when the patient is allowed to walk about immediately afterwards.

HIGHER QUALIFICATIONS FOR CANADIAN PRACTITIONERS.

A RECENT editorial article in the *Journal of the Canadian Medical Association*, dealing with the development in population and importance of the Dominion, points out that such advances carry with them the necessity to raise the standards in all special social activities. Problems which have been solved or have solved themselves in the countries of older civilisation present themselves regularly to newer States, and for some years the question of the development of medical education in Canada has been a subject of particular interest to the Association. Two years ago the Association made representations to the Royal College of Surgeons of England upon the desirability of facilitating for Canadian graduates the attainment of the Fellowship. The representations made were to the effect that, as the expenditure of time and money required by the journey to London to sit for the examinations had a very deterrent influence on Canadian candidates, it was hoped that the College would devise a method by which examinations could be held in Canada. It may be remembered that the justice of the arguments of the Association was recognised handsomely by the College, and in a report from the Nomination Committee of the College upon the Primary Examination for the Fellowship, the following recommendation was made and adopted by the Council in May last: "That it is desirable to send examiners to the Dominions to

[1] Antoni: Ugeskrift f. laeger, 1924, lxxxvi.
[2] W. Wechselmann: Med. Klin., Dec. 18th, 1924 p. 1787.

conduct a Primary Examination for the Fellowship, of the same standard as the examination in this country, on conditions to be hereafter determined, provided that satisfactory arrangements can be made." The journal of the Association announces that in all likelihood this Primary Examination in anatomy and physiology will be open to Canadian undergraduates who have completed advanced courses in the subjects, as well as to qualified graduates, and it is hoped that the first examination may be held in Canada next summer. In the meantime Mr. S. F. Cowell, the secretary of the College, and Mr. F. G. Hallett, the director of examinations of the Conjoint Board, are conducting the necessary negotiations with the Canadian authorities.

QUARTERLY CUMULATIVE INDEX MEDICUS.

THE product of the fusion of the two most trustworthy journals of reference to medical and allied publications in the English, if not in any language, has taken an agreeable form. The first issue of the Quarterly Cumulative Index Medicus,[1] which has just reached us, is a handsome volume, light in weight, firmly bound and clearly printed. It contains for the period under review the names of the writers and the titles of the subject matter, indexed alphabetically, of all the contributions to all the general and special medical journals received in the library of the Surgeon-General's Office in Washington, and these include practically the whole medical literature of the world. In a valedictory foreword to the last (supplementary) number to be issued of the Index Medicus, the editors gave a brief history of the evolution of this work, which dates from 1879, whereas in the *Journal of the American Medical Association* of July 2nd the genesis of the younger parent, the Quarterly Cumulative Index of the American Medical Association (started in 1916), is set out. Those who habitually use either publication are well aware of their peculiar advantages; those who are familiar with neither may note that the last-named index of contributions to the more important periodicals was on the whole more convenient for current use, whereas the Index Medicus was more exhaustive. The duplication of labour and expense was recognised to be unnecessary and wasteful, and last year the new Quarterly Cumulative Index Medicus was carefully designed to combine the best features of the classification of both works. The index is alphabetical as to authors and subjects. The author's titles are now given in full in the original languages, with the exception of titles in the Slavic, Scandinavian, and Oriental languages, which are presented in English translation; the subject entries are brief English abstracts of the actual content of the articles in question, without references to the titles, unless the latter happen to be accurately descriptive. Cross-references are frequent. The new books published throughout the world during the half year are presented, for ready reference, both by authors and by subjects and with prices attached at the beginning of the volume. Incidentally these are less numerous than might have been expected—for example, only ten works appear to have been published on surgery, six of which are in the German language. It is not quite clear what practice is followed when a new edition is entirely re-written by living workers of a well-known classic, the original name being retained. An alphabetical list of publishers of the books and periodicals indexed (American and foreign) and an alphabetical list of all the periodicals indexed are also included. The number of current periodicals now coming into the Surgeon-General's library is about 1925. They include all important periodicals of anthropology, biology, psychology, and even those of chemistry, physics, and general science, which may publish articles bearing on medicine. Any unusual and noteworthy books or articles of this character not apt to be represented in regular medical channels will be included if sent to the Chicago Editor (American Medical Association). Immense labour is involved in the preparation of such an accurate and complete account of the world literature of our science. The American Medical Association and the Carnegie Institute, which bears a portion of the expense of publication, deserve the gratitude of medical workers in all countries.

[1] Vol. I., January–June, 1927. Chicago: American Medical Association. Pp. 840. $8.75 for two volumes.

PROTECTION AGAINST MEASLES.

NOT long ago Dr. J. E. McCartney reviewed in our columns [1] certain recent work on measles and referred to a green-producing diplococcus isolated by Ruth Tunnicliff and thought to be of ætiological significance in the disease. An antiserum made by injecting this organism into goats is said to protect children against infection, and Tunnicliff and White [2] now report similar results obtained with the serum of an immunised horse. Carbolised broth cultures of the diplococcus were injected into the animal at intervals of from three to seven days, and when a basal immunity had been obtained it was inoculated with living diplococci by the Dochez method. Further injections of killed whole broth culture and living organisms were made alternately. The serum from the several bleedings of the animal was pooled; part was concentrated by a modified Banzhaf ammonium sulphate method and the rest was used unrefined. The serum was found to contain opsonins and neutralised the diplococcus antigen used for cutaneous tests on rabbits and on human beings; it also protected mice against fatal doses of green-producing measles diplococcus. The effect on human beings has not yet been studied on a large scale. The unrefined serum, administered in doses of 5 c.cm. to five children on the fourth day after exposure to measles, protected one child, modified the disease in another, and apparently had no effect on the other three. In another series 10 c.cm. was given to each of four children on the fourth day after exposure, and one child developed unmodified measles. Of the concentrated serum 10 c.cm. was given to each of four children exposed to measles four days previously. Of these two escaped, one had mild measles 14 days after exposure, and the other contracted mild measles 30 days afterwards. These cases are too few in number for any conclusions to be drawn further than that the serum seems to give protection in some cases but not in others.

[1] THE LANCET, 1927, i. 93.

[2] Tunnicliff, Ruth, and White, B.: Boston Medical and Surgical Journal, August 18th, p. 272.

MEDICAL CANDIDATES FOR THE DAIL.

THE general election of the new Dail is to be held on Sept. 15th, and of the 260 candidates for 150 seats, 11 are medical men. Of these, Sir James Craig, one of the sitting members for Dublin University, has, with his colleagues, been returned unopposed. He sits as an Independent supporter of the Government. Of the remaining ten five are Government candidates and five are Fianna Fail. Mr. T. Hennessy, who was elected at a by-election only a fortnight ago, has again to contest his seat without having entered the Dail. His return for South Dublin City is, however, almost certain. Dr. Myles Keogh, another of the candidates for the same division, has hitherto sat as an Independent, but now comes forward as a Government candidate.

Sir Arthur Keith was able to announce on Tuesday last to the British Association that, in answer to his appeal to the public for the preservation of Downe House, the home of Darwin, he had received a telegram from Mr. Buckston Browne making himself wholly responsible for the national gift. No other contributions will be necessary. Mr. Buckston Browne's offer, which was gratefully accepted by the Association at the closing of its sessions, implies a gift to the nation amounting, with a certain endowment, probably to as much as £14,000 or £15,000; he has made the valuable suggestion that the office of curator of the premises should be given to a suitable medical man.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXL.—THE TREATMENT OF G.P.I. (PARESIS; DEMENTIA PARALYTICA).

II. THE CHRONIC CASE.[1]

SOME cases of paresis which are not responsive to treatment, in spite of early diagnosis and the prompt application of the methods were outlined last week. Some patients continue to deteriorate slowly; others improve, but psychical defect remains, and they are not able to look after themselves or resume their work. There has also to be considered the patient who, by reason of some physical defect or age, is not suitable for the use of malarial therapy. Some of the slowly dementing forms of paresis present great difficulties to the practitioner. The patient has no insight into his condition, may show profound loss of memory, may have attacks of mild confusion, may be erratic and even dirty in his habits, and yet does not become so disordered in his conduct or speech as to justify a certificate of unsoundness of mind under the Lunacy Act. Yet for the majority of chronic cases certification and treatment as an in-patient in a mental hospital becomes necessary sooner or later. Nursing a chronic case at home or in a suitable nursing home involves considerable expense, since adequate assistance must be available. It can be done, and sometimes there is no alternative.

Treatment should ensure as much fresh air as is possible. The patient must always be accompanied when walking or driving. An effort should be made to provide some simple out-door amusement to interest him, for he will often pass many hours playing at some easy game. Bowls, clock golf, skittles, are among the games which are easily set out on the smallest patch of grass. In the later stages of enfeeblement care must be taken to see that the patient is not unduly exposed to the weather, especially when the wind is easterly. Patients become very liable to attacks of broncho-pneumonia as the disease progresses, and a fatal illness not infrequently follows a walk or drive in a cold east wind.

Diet.

The diet should be liberal, though care must be exercised to see that any tendency to gross over-feeding is checked. Practically all solid food must be minced; paretics choke themselves easily with meat, or with potatoes, which they often swallow whole. The supply of meat should be sparing, and it should be arranged that the chief meal be taken at midday. Bones must be removed from fish; eggs and milk should be given freely, and will form the greater part of the dietary in the later stages. The absolute avoidance of alcohol is a fetish. Indeed, many patients are better for 1½ to 2 ounces of whisky or brandy taken with the principal meal. All wines should be forbidden. Tobacco in moderation may be allowed.

Sleep.

Insomnia is rarely a feature of the chronic case of paresis. In practice it will be found that somnolence is much more usual. For this reason patients should be put to bed early; 8 or 9 P.M. is not too soon, and the patients often sleep the night through. The bedroom should contain very little furniture; linoleum is the best covering for the floor. A patient who is confused is safer on a box or spring mattress placed on the floor of the room. He may be even safer on a single mattress on the floor. The discomfort of this couch may be mitigated by placing under it a cork mattress, such as is sold in camp outfits.

Insomnia and restlessness at night may be relieved by a dose of castor oil. If this measure is not successful sleep can generally be secured by ordering 5 gr. each of the three bromides, 6 gr. of medinal, or 1 or 2 drachms of paraldehyde or amylene hydrate taken on retiring. The bowels must be kept functioning rather freely. Patients require larger doses of laxatives than the normal person. Castor oil should be given when there are attacks of irritability, restlessness, mild confusion, or excitement. An inspection and palpation of the abdomen should be made frequently by the physician in charge, with a view to detecting a distended bladder. A paretic in the advanced stages, or even before, will walk about without complaint with a very distended bladder. Retention, or distension without actual retention, is relieved by the use of a catheter, seldom necessary for more than one or two days.

Seizures.

If the management of a paretic be successful, fits will be rare or unknown. If they occur, they may be epileptiform or apoplectiform in type, or resemble a Jacksonian attack in which there is no loss of consciousness. The epileptiform attacks are best treated with an injection of a morphine salt. If the fits continue lumbar puncture sometimes relieves them instantly. Chloroform anæsthesia may be necessary in a severe case. A sedative mixture containing 10 gr. of potassium bromide and 5 gr. of chloral hydrate may be given for a few days after a seizure. A mixture which is useful in preventing seizures contains 15 gr. of hexamine and a similar quantity of acid sodium phosphate. Whatever its action, the regular use of hexamine will produce satisfactory results in limiting the "fits" of paresis. The paralyses following the fits clear up rapidly, often within a few hours. It is probable that antisyphilitic treatment also minimises the risk of fits. Novarsenobillon, and mercury and iodides have some influence, though there are some patients who do not tolerate either very well, and in this case the drugs should then be discontinued.

During the confusion and paralysis following a seizure it may be necessary to feed the patient artificially. Swallowing becomes difficult or temporarily impossible, and attempts at spoon-feeding are dangerous. It is better to use a nasal tube once or twice a day so that food and necessary medicines can be given with safety and certainty. The bowels may prove difficult to move after a fit; an enema should be used, a simple soap solution being all that is required.

Sudden attacks of vomiting of the cerebral type may herald a seizure, or may be a troublesome feature of the disease. The diet should be cut down to liquids, hexamine prescribed, and a brisk purge ordered.

Late Stages.

As the disease progresses wasting becomes pronounced, and there will be increasing feebleness and inability to walk or stand. At this period there will also be a rarefying osteitis of the long bones and ribs, and a fall or other slight injury is very liable to produce a fracture. Friends should be warned of this serious possibility. Pronounced ataxy and feebleness is best dealt with by putting the patient to bed, preferably on a water- or air-bed. Improvement often follows, and in a week or two the patient can be got up again. Wasting becomes pronounced, and great efforts will be needed to prevent bed-sores. Measures must be taken to keep the patient clean and dry. Constant inspections are necessary to see if changing is required. While the patient is still up a large sanitary towel is useful to prevent the soiling of clothes. It may be used when the patient becomes bed-ridden, but care must be exercised to see that the towel is changed at once when wet or dirty. Wet sheets and garments must be removed at once, and when in bed the patient's position should be altered hourly, both by day and night. A night nurse is a necessity in the later stages. A careful toilet of the skin must be carried out twice daily, and prominent points rubbed with spirit and dusted with an antiseptic powder. Should bed-sores appear they may be treated with any mild antiseptic dressing, which must be renewed frequently. A

[1] Part I., on the Recent Case, appeared last week.

sluggish bed-sore will often heal after it has been fomented for a few days. In the final scenes artificial feeding may be required, and is easily performed through a nasal tube.

Antisyphilitic Treatment.

Many patients seem to derive benefit from regular courses of N.A.B. or sulfarsenol, the latter drug being given intramuscularly. A course may be given at intervals of 4–6 months. The dosage should be small to commence with and increase gradually. Commencing with 0·45 g. of N.A.B. or 0·18 g. of sulfarsenol, the dose is increased to 0·9 g. and 0·60 g. respectively at a slow rate, the intervals between the injections being a week, and six or eight injections complete the course. Improvement in general health may result, but the use of these preparations is inadvisable when the patient does not tolerate them well, or if there is no definite physical improvement.

The same remarks apply to mercurial preparations. A mixture containing 5 gr. of potass. iodid. and a drachm of liq. hydrarg. perchlor. t.d.s. may be helpful, and relieves headache, if present. A pill containing ¼ gr. of hydrargyri iodid. virid. is another good prescription, and is given twice daily, with regular rests. Should mercury in some form produce improvement, and be well tolerated, it can be safely continued. If there is no physical benefit, or any sign of intolerance, continued use of the preparations of either arsenic or mercury are not justified.

Conclusion.

The practitioner should not fail to warn the family of a paretic of the risks attached to nursing at home. There may be attacks of excitement, or sudden impulsive actions on the part of the patient which almost invariably indicate legal care to be a necessity. In a small establishment home care is a grave problem, and if the mental condition permits of certification, the patient is just as contented in a mental hospital. The care of property is a question which need present little difficulty. This can be dealt with by procedure under Section 116, Subsection (*d*) of the Lunacy Act, by which the property of the patient can be cared for, provided he be shown to be incapable of managing his own affairs by reason of mental infirmity arising from the disease.

G. W. B. JAMES, *M.C.*, M.D. Lond.,
Physician for Mental Diseases to St. Mary's Hospital, Paddington.

Special Articles.

THE DEATHS OF MERCHANT SEAMEN IN 1925.

BY FLEET-SURGEON W. E. HOME, M.D.

THE Board of Trade's "Return of Shipping Casualties to and Deaths on Vessels Registered in the United Kingdom" (excluding the Irish Free State) for 1925, the only vital statistic for the merchant marine, was issued in April. It has the same eight pages as before, but costs 2*s.* only, instead of 3*s.*, which is a slight improvement to begin with. The number of seamen concerned is much the same as in the year preceding, being for "first crews of ships," in steam, British, 168,208; foreigners, 11,864; and Lascars, 54,969; total for steam, 235,041; and in sail, 1983, who, as nothing is said to the contrary, may all be taken as British. No hint is given as to the average numbers employed daily, but the figures of previous five-yearly censuses of seamen suggest that the average is generally 90 per cent. of the "first crews"[1]; and we therefore adopt, as the numbers probably employed daily (the figures with which to attempt calculating death-rates), British, 153,131; foreign, 10,678; Lascars, 49,472; and hope they will give us a tolerable approximation. Then we have, per 1000, the following as the likely death-rates:—

—	In sail.	In all.		
		British.	Foreign.	Lascar.
Death-rate for disease ..	2	2·05	4·97	5·33
„ „ alcohol ..	—	0·22	0·46	—
„ „ accident ..	12	3·25	3·74	1·74
—	14	5·52	9·17	7·07

Sailing ships (1983 men, 28 deaths) show a lesser death-rate than steamships by disease, but a vastly greater loss (treble) by accidents. They have less and less influence on the total from year to year, as the numbers they employ (in 1905, 25,000; now, 1983) are constantly decreasing. Even with so few in sail British merchant seamen have a risk of death by accident, 3·25 in 1925, nearly three times that (1·13) stated for the coal-miner, underground, on p. 191 of the recent report of the Royal Commission on the Coal Industry. That Commission stated the rate in shipping, 1922–24, as 1·28, but did not give the exact reference; in those years the death-rate from accidents of seamen on their ships was 3·15, 2·78, and 2·60. In 1925, as we have seen, it was 3·25; cases influenced by alcohol are all and always excluded.

Since the last return, which appeared rather more than a year ago, the Board of Trade has taken counsel with experts from the offices of the Registrars-General of England and Wales, and of Scotland, and with other authorities, and has adopted some at least of their advice, so that the list of the diseases which were the causes of the deaths of seamen no longer causes a shock of pained surprise to the doctor who chances to read it, tuberculosis being no longer distinctly separated from the diseases due to infection. Yet the list is not quite what is wanted. There is only room on it for 27 lines of diseases or groups of diseases mentioned. Now we all know that if people were asked to submit the best 27 headings under which to group to best advantage, most instructively, the deaths which from year to year might occur among seamen, no two would submit lists that were identical, yet undoubtedly certain of the more frequently recurring and more important diseases of seamen would be included in all such lists if submitted by doctors who were acquainted with the prevalences of disease and death among seamen. Cholera, dysentery, plague, yellow fever, malaria, beri-beri—diseases to which seamen are by their occupation more exposed than other men—would probably appear in all, and pneumonia, enteric fever, and small-pox also, causes of too frequent deaths and to be prevented. Yet plague, dysentery, yellow fever, and beri-beri are not given lines on the form itself (though they are wisely mentioned in the notes), while valuable lines are surrendered to various diseases of children, rarely attacking seamen, measles, whooping-cough, scarlet fever. Whooping-cough! Just think of it! In 1922 (that book happens to be at hand) there were 2864 male deaths from whooping-cough in England and Wales; most of them occurred under the age of 5 years; only *two* happened among men of the age of seamen (15–60), yet one valuable line in the return is wasted on this disease, which a seamen will only get by an accident (the Navy does not give whooping-cough one of its 100 lines of diseases), while plague, of great importance to the seamen, is crowded out, like beri-beri, from which there were

[1] Proc. Roy. Soc. Med., 1926, xix., Epidemiology, p. 97.

21 deaths. Naturally, there is no doctor's signature expressing approval with this list of diseases, only the same layman's as last year. Very likely he will learn better in time, and he has done better this year.

There were, in 1925, 843 deaths among British seamen from disease, the most important single cause being pneumonia, 49 (46 in the previous year); there were fewer deaths from enteric fever, 12 (29); from malaria, 11 (28); from tuberculosis of the lung, 11 (21); and from other tuberculosis, 3 (12). There were more from alcohol, direct and indirect, 34 (26), and more from accidents, 496 (433); the numbers for the various accidents were: heatstroke, 20 (9); murdered, 8 (4); suicide, 37 (28); lost in accidents to ships, 186 (132); lost in accidents on board, 150 (178); in accidents ashore, 95 (82). Lascars had, as usual, a higher death-rate for disease than had British seamen, but a lower rate for accidents. Their rates were increased for pneumonia, 51 (49) cases; for phthisis, 48 (43); and for beri-beri, 20 (11). Anyone in the profession can see there should be an inquiry about these 20 deaths from beri-beri, with a view to future prevention, but we do not hear of such inquiries. How long will it be before the profession insists there shall be a special medical officer, of the standing of a medical officer of health, appointed to see that the necessary thought is given to the health of merchant seamen?

It appears as if seamen in 1925 had a death-rate from enteric fever four times that of the standard for males of their ages in England and Wales, for small-pox 100 times, for accidents six times, but only half the standard for pneumonia, and a twentieth of that for tuberculosis of the lung. The phthisis-rate is less comparable for seamen than are others, for phthisis is a chronic disease, and the death-rate shown for seamen cannot be complete, as patients cannot go on serving, and so most of them drop out of the ranks of seamen before their deaths are registrable, so the Board of Trade does not hear of them and they are not counted in the return. The death-rates here stated for pneumonia are: for British seamen, 0·32; for Lascars, 1·03; for the Army in 1925 the rate was 0·33; and for the Navy in 1924 (last year available), 0·14.

One definite advance is notified this year; most of the deaths are, it is stated, now certified by a doctor, so their classification is more reliable. We are still left without any convincing statement of the average number of men employed daily, and we are without any officially-propounded death-rate, however approximate, for seamen in 1925. In addition, there is no discussion of the deaths that occurred, nor is there any suggestion that the prevention of any of these diseases or deaths is being actually considered; such prudent medical procedures could hardly have been expected from a body which has no permanent professional adviser, and is only intermittently professionally advised.

The Board of Trade seems slow in learning, for although it has during 30 or 40 years, perhaps longer, exercised supervision over seamen's diseases, it still thinks whooping-cough among the 26 more important of them. Was it not judicious of the Royal Sanitary Institute to forward to the Board of Trade and the Ministry of Health a resolution that the care of the health of the men of the Merchant Service should be given in charge to the Ministry of Health, the Board of Trade not being specially organised for that duty?

DEATHS AND DEATH-RATES FOR MERCHANT SEAMEN IN 1925.

—	Number of deaths.			Per 1000.		
Numbers, probable daily average	British, 153,131	Foreign, 10,678	Lascar, 49,472	British, 1000	Foreign, 1000	Lascar, 1000
Equivalent of a single death ..	—	—	—	0·00654	0·0936	0·02
Cholera	—	—	3	—	—	0·06
Dysentery	10	—	7	0·06	—	0·14
Enteric fever	12	5	6	0·08	0·47	0·12
Influenza	2	1	3	0·01	0·09	0·06
Malaria	11	—	17	0·07	—	0·34
Plague	—	—	—	—	—	—
Pneumonia	49	6	51	0·32	0·56	1·03
Small-pox	3	—	2	0·02	—	0·04
Tuberculosis (lung)	11	4	48	0·07	0·37	0·97
,, (other)	3	1	3	0·02	0·09	0·06
Yellow fever	1	—	—	0·01	—	—
Other infective diseases	7	—	—	0·04	—	—
Beri-beri	1	—	20	0·01	—	0·40
Cancer	8	1	2	0·05	0·09	0·04
Other general diseases	2	1	—	0·01	0·09	—
Diseases of the—						
Nervous System	18	1	2	0·12	0·09	0·04
Circulatory ,, ...	72	9	20	0·47	0·84	0·40
Respiratory ,, ...	8	2	7	0·05	0·19	0·14
Digestive ,, ...	38	5	8	0·25	0·47	0·16
Urinary ,, ...	8	2	9	0·05	0·05	0·18
Other defined diseases	16	—	—	0·11	—	—
Ill-defined and unknown	33	15	56	0·22	1·40	1·13
Total diseases	313	53	264	2·05	4·97	5·33
Alcoholism	5	1	—	0·03	0·09	—
,, (accidents)	25	4	—	0·16	0·36	—
,, (diseases)	4	—	—	0·03	—	—
Total alcohol	34	5	—	0·22	0·46	—
Heatstroke	20	1	4	0·13	0·09	0·08
Homicide	8	—	5	0·05	—	0·10
Suicide	37	3	18	0·24	0·29	0·36
Casualties to ships	186	10	3	1·22	0·94	0·06
,, on board	150	16	47	0·98	1·50	0·95
,, ashore	95	10	9	0·63	0·94	0·18
Total accidents	496	40	86	3·25	3·74	1·74
Total of all deaths ..	843	98	350	5·513	9·17	7·07

THE MEDICAL REGISTER: UNTRACEABLE PRACTITIONERS IN 1927.

WE are requested by the Registrar of the General Medical Council to publish the following list of medical practitioners who have not replied to his inquiries as to the accuracy of their addresses. Anyone who finds his or her name included in this list should communicate immediately with the Registrar of the General Medical Council, 44, Hallam-street, Portland-place, London, W. 1, otherwise the name will be omitted from the next issue of the Medical Register.

Abdurahman, Ismail, M.B., 1915(E).
Abushady, Ahmed Z., L.M.S.S.A., 1915(E)
Adams, Edward J., M.R.C.S., 1867(E).
Addinsell, John H., L.R.C.P., 1901(E).
Addison, Hallowes L., M.R.C.S., 1914(E).
Adeney, George C., M.R.C.S., 1903(E).
Ahearne, Joseph, L.R.C.S., 1871(E).
Ahmad, Abdul M., M.R.C.S., 1916(E).
Ahmed, Esawy, M.R.C.S., 1917(E).
Aiken, James P., M.B., 1912(I).
Ainley, Frederick S., M.B., 1893(S).
Ainsley, James E., L.R.C.P., 1916(E).
Ainsworth, Douglas R., M.R.C.S., 1922(E).
Alcorn, Robert M., L.R.C.P., 1914(I).
Alexander, Frederick H., M.B., 1921(E).
Allen, Norman, M.R.C.S., 1886(E).
Allman (Mrs.), Ethel A., M.B., 1909(E).
Allport, Evett G., M.R.C.S., 1902(E).
Alper, Minnie, M.B., 1922(E).
Anderson, Charles M., M.R.C.S., 1876(E).
Anderson, Florence M., M.B., 1922(I).
Anderson, Frederick, M.B., 1897(S).
Anderson, John C., M.B., 1897(E).
Anderson, Thomas Cochrane, M.B., 1882(S).
Andrew, George, M.R.C.S., 1874(E).
Andrew, Philip O., O.B.E., M.R.C.S., 1896(E).
Anthony, Christie M., M.R.C.S., 1915(E).
Arbuckle, Donald, M.B., 1911(S).
Areskoug (Mrs.), Carolina, L.S.A., 1904(E).
Armstrong, Harry, L.R.C.P., 1903(S).
Armstrong, Margaret M., M.B., 1924(I).
Armstrong, William L., M.B., 1898(I).
Arnold, Frank A., L.S.A., 1892(E).
Ash, Alfred E., M.R.C.S., 1890(E).
Ashburner, Robert, L.R.C.P., 1883(E).
Atkins, Francis T., L.S.A., 1873(E).
Austin (Mrs.), Cristina, M.B., 1905(S).
Avarne, Claude H. B., M.R.C.S., 1914(E).

Bailey, Edwin R., M.R.C.S., 1914(E).
Bainbridge, Philip G., L.R.C.P., 1923(S).
Baker, Leonard T., M.B., 1909(E).
Banerjee, Prabodh C., L.R.C.P., 1919(E).
Barff, George P., L.R.C.P., 1899(E).
Barker, John E., L.R.C.S., 1863(I).
Barrett, Joseph H. P. B., M.B., 1907(I).
Barry, David T., M.B., 1894(I).
Barry, John M., L.R.C.P., 1901(I).
Barry, Stephen J., L.R.C.P., 1910(I).
Bartlett, George B., M.R.C.S., 1906(E).
Basil-Khan, Minas M., M.B., 1883(S).
Basu, Sir Kailas C., Kt., C.I.E., O.B.E., L.M.S., 1895(Col).
Bates, Herbert, M.B., 1901(E).
Baylor, Robert J., L.K.Q.C.P., 1880(I).
Bayumi, Mahmud, M.R.C.S., 1915(E).
Beale, Thomas M., M.R.C.S., 1899(E).
Bearblock, Arthur, M.R.C.S., 1920(E).
Beards, Samuel A., M.R.C.S., 1924(E).
Beasley, Henry C., L.R.C.P., 1893(I).
Beattie, William P., M.B., 1904(S).
Beddoes, Thomas P., M.R.C.S., 1884(E).
Bell, Francis G., *M.C.*, M.B., 1910(S).
Bell, Mary C., M.B., 1903(E).
Bell-Smyly (Mrs.), Eileen M., M.B., 1917(I).
Belton, Cassius W., L.R.C.P., 1882(S).
Benbow, Thomas A. P., M.R.C.S., 1916(E).
Bennett, Thomas A., L.R.C.P., 1922(I).
Benson, Henry P. D'A., M.B., 1892(E).
Bestawros, Riad H., M.R.C.S., 1925(E).
Betteridge (Mrs.), F. M. C., L.M.S.S.A., 1908(E).
Bevan-Brown, Frederic V., M.R.C.S., 1913(E).
Bhatia, Sohan L., *M.C.*, M.R.C.S., 1916(E)
Bibby, William A., L.M.S.S.A., 1917(E).
Billimoria, Sorab D., L.M.S., 1921(Col).
Birmingham, Herbert J., L.R.C.S., 1881(I)
Bishop, Darell W., M.R.C.S., 1900(E).
Blanchard, David F., L.R.C.P., 1894(S).
Bliedon, Max, M.R.C.S., 1897(E).
Blood, Charles H., M.B., 1884(I).
Bluemel, Charles S., M.R.C.S., 1917(E).
Boltman, Robert F., M.B., 1918(S).
Bonar, Thomas L., M.R.C.S., 1920(E).
Boon, Alfred H., M.R.C.S., 1917(E).
Boughton, William B., L.R.C.S., 1877(E).
Bourns, Newcome W., M.R.C.S., 1879(E).
Bowe, Francis, M.R.C.S., 1880(E).
Bowen, Daniel R., L.R.C.P., 1887(S).
Bowen, John E., M.B., 1921(I).
Bowie, Edgar O., L.A.H., 1914(I).
Bowker, Richard R. P. S., L.S.A., 1900(E).
Boyd, Alexander J., M.B., 1885(I).
Brabyn, George W., L.R.C.P., 1893(E).
Brandt, Reginald R. J., M.B., 1924(I).
Bratton, William, L.R.C.P., 1895(I).
Bray, Frederick H., M.B., 1915(E).
Bray, Percy D., L.S.A., 1885(E).
Breton, Lancelot M., L.S.A., 1895(E).
Briggs, William P., L.F.P.S., 1877(E).
Brigstocke, Leslie C. W., L.S.A., 1907(E).
Brill, Hirsh, M.B., 1917(I).
Bristow, Harry L., M.B., 1906(I).
Brito-Mutunayagam, Michael A. B., M.R.C.S., 1924(E).
Broad, William, M.B., 1899(S).
Brock, Benjamin G., L.R.C.P., 1884(S).
Brodie, John, M.R.C.S., 1919(E).
Brook, Charles, M.R.C.S., 1861(E).
Brook, Thomas, M.B., 1912(I).
Brooks, Gertrude, M.B., 1911(E).
Brooks, (Mrs.) Moira M. St. J., M.B., 1920(I).
Brown, Abraham S. S., M.R.C.S., 1925(E).
Brown, Duncan F., M.B., 1893(S).
Brown, Elijah, M.R.C.S., 1893(E).
Brown, James F., L.S.A., 1897(E).
Brown, John, M.D., 1863(E).
Browne, Elliott S., L.R.C.S., 1874(I).
Browne, William H., L.R.C.P., 1921(I).
Browning, Edgar, M.R.C.S., 1887(E).
Bruce, Hugh G., M.B., 1912(S).
Bruce, James W. K., M.B., 1914(S).
Bryan, Richard B. (Clerk), M.B., 1907 (I).
Burke, Hubert W., L.R.C.P., 1883(E).
Burke-Gaffney, Henry O'D., M.B., 1924(I)
Burman, Hugh W., M.R.C.S., 1905(E).
Burns, Michael J., M.B., 1916(I).
Burrell, Rex J. W., M.B., 1925(I).
Burton, Russell N., L.R.C.P., 1917(E).
Burton, William E., L.R.C.P., 1861(I).
Butterfield, Arthur, L.M.S.S.A., 1915(E).
Bynoe, Charles A., L.R.C.S., 1889(E).
Byrne, Henry, L.R.C.S., 1887(I).
Byrne, Lucretia H. H., L.R.C.P., 1921(I).

Callanan, Michael, L.R.C.S., 1875(I).
Calvo, Ricardo, M.R.C.S., 1918(E).
Cambie, Edward L., L.R.C.P., 1892(I).
Cameron, Patrick S. G., M.B., 1918(S).
Campbell, Helen Y., L.R.C.P., 1907(S).
Capener (Mrs.), Marion C. V. (formerly Clarke), M.R.C.S., 1921(E).
Carew, Walter G., L.R.C.P., 1921(E).
Carleton, Mayberry H., L.R.C.P., 1921(S).
Carrasco, Milton, M.R.C.S., 1915(E).
Carrington, George H., L.S.A., 1884(E).
Carson, James C., M.B., 1922(I).
Carte, Percy G., L.R.C.S., 1895(I).
Carter, Gerald B., M.B., 1896(I).
Carter, Ralph H., M.R.C.S., 1923(E).
Carter, Thomas, L.R.C.P., 1864(E).
Castle, Harold D. B., L.S.A., 1894(E).
Chadwick, Alfred, M.R.C.S., 1875(E).
Chadwick, Charles M., M.R.C.S., 1882(E).
Challenger, Neville E., L.M.S.S.A., 1925(E).
Chapple, Robert Ll., L.S.A., 1893(E).
Chataway (Mrs.), G. S. M., M.R.C.S. 1925(E).
Chaudhri, Kewal R., L.M.S.S.A., 1924 (E).
Childs, Tom W. J., M.B., 1913(S).
Christal, John, L.R.C.S., 1876(I).
Christie, Joseph W., L.R.C.P., 1879(E).
Chu, Ando H., M.B., 1916(S).
Chun, John W. H., M.R.C.S., 1920(E).
Churchill, Alix J., M.R.C.S., 1919(E).
Cieh, Ying-Jue, M.R.C.S., 1915(E).
Clarke, Arthur H., M.R.C.S., 1894(E).
Clarke, Herbert E., L.R.C.P., 1912(I).
Clarke, Joseph H., M.R.C.S., 1872(E).
Clarke, Robert H., M.R.C.S., 1877(E).
Clarke, William F., M.R.C.S., 1887(E).
Clayton, Joseph E., M.R.C.S., 1875(E).
Clein, David, L.R.C.P., 1921(I).
Cline, Eric C., M.R.C.S., 1915(E).
Clough, Harry, L.S.A., 1899(E).
Coetzee, Johannes C., M.B., 1920(I).
Coetzee, Louis J., M.B., 1922(I).
Cohen, Algernon A., M.B., 1880(E).
Cohney, Solomon, L.M.S.S.A., 1922(E).
Colahan, William E., L.R.C.P., 1920(I).
Cole, Arthur, L.R.C.S., 1883(I).
Coleman, Philip, M.B., 1925(I).
Coll, Charles J., M.B., 1922(I).
Collier, Joseph H., L.R.C.P., 1894(S).
Collins, John C., L.A.H., 1926(I).
Comty, Louis N. R., M.R.C.S., 1925(E).
Connolly, James J., M.B., 1922(I).
Connolly, Peter J., M.B., 1922(I).
Conroy, Martin P., M.B., 1923(I).
Cooney, Thomas, L.R.C.P., 1921(I).
Cooper, Hugh A., M.B., 1924(E).
Cooper, William, M.B., 1881(S).
Corbett, Michael, L.R.C.P., 1872(I).
Cordingly, Grace M., L.M.S.S.A., 1913(E).
Corsellis, Ernest, L.R.C.P., 1896(I).
Coulter, Henry H., M.B., 1920(I).
Cowell, George, M.R.C.S., 1859(E).
Cramer, Stanley L., L.R.C.P., 1925(S).
Crean, Charles E., L.R.C.S., 1868(I).
Cremin, John, L.R.C.S., 1871(I).
Crichton, George, L.R.C.S., 1875(E).
Crinsoz de Cottens, François, M.R.C.S., 1916(E).
Crinsoz de Cottens, Marguerite, L.M.S.S.A., 1919(E).
Cronin, Dennis, M.B., 1922(I).
Crooks, David McK., M.B., 1903(S).
Crowe, John J., L.A.H., 1919(I).
Crowe, Matthew S., M.B., 1921(I).
Crowe, Patrick V. F., L.R.C.P., 1912(I).
Cruickshank, William E., L.R.C.P., 1913(E).
Cullen, James A. P., M.R.C.S., 1899(E).
Cullenan, John, M.B., 1916(I).
Cummings, Edwin T., L.R.C.P., 1887(I).
Currie, Oswald J., M.R.C.S., 1881(E).
Currie, William, M.B., 1890(S).
Curtis, Wilfred, L.R.C.P., 1895(S).
Cusack, Bernard A., M.B., 1915(I).
Cusack, Patrick J., L.R.C.P., 1907(I).

D'Abreu, Delphine G., M.R.C.S., 1915(E).
Dallaway, Joseph W. D., M.R.C.S., 1879(E).
Daly, James T., M.R.C.S., 1909(E).
Daniel, Agnes S., M.R.C.S., 1924(E).
Darwent, Claude Trevor, L.R.C.P., 1915(S).
Das, Ishwar, L.R.C.P., 1910(S).
Davidson, Richard, M.B., 1886(S.)
Davidson, Thomas J., M.B., 1922(S).
Davie, Peter C., M.B., 1915(S).
Davies, David E. S., L.M.S.S.A., 1912(E).
Davies, John, L.R.C.P., 1898(S.)
Davis, Norman, M.B., 1888(E).
Day, James D., M.B., 1879(I).
Day-Lewis, Alfred K., M.R.C.S., 1921(E).
Deale, James E., M.B., 1923(I).
Dear, Alexander A., M.R.C.S., 1911(E).
De Forest, Carl B., L.M.S.S.A., 1916(E).
Deif, Ahmed M., M.R.C.S., 1922(E).
de Kock, Jan J. G., M.B., 1919(I).
Delahunt, William P., L.R.C.S., 1884(I).
Delany, James J., M.B., 1915(I).
de la Pasture, Yolande M., M.B., 1925(E).
del Pino, George, M.B., 1915(S).
Denny, Charles J., M.R.C.S., 1865(E).
De Penning, Herbert C., L.M.S.S.A., 1921(E).
Desai, Narayan K., L.R.C.P., 1906(I).
de Sousa, Alberto, M.R.C.S., 1926(E).
de Villiers, Johannes P., M.B., 1920(I).
Devlin, John J. M., M.B., 1924(I).
Devonald, Alfred E. L., L.M.S.S.A., 1911(E).
Dewhirst, Wilfrid A., M.B., 1898(E).
Dick, William, L.R.C.P., 1904(S).
Dillon, Henry V. M., L.R.C.S., 1882(I).
Dimond, John L., M.B., 1900(E).
Dippenaar, Michiel C., M.B., 1917(I).
Dixon, Charles W., M.B., 1914(E).
Donald, James K., M.B., 1924(S).
Donelan, Joseph O'C., L.R.C.S., 1887(E).
Dooley, Annie, M.B., 1916(I).
Doran, Ambrose, L.R.C.P., 1921(I).
Dorner, Georg, M.R.C.S., 1911(E).
Douglas, John, M.B., 1924(S).
Douglas, William, M.R.C.S., 1868(E).
Doyle, Andrew A., L.R.C.S., 1887(I).
Doyle, Dominick J., M.B., 1917(I).
Drake, Dennis C., M.R.C.S., 1925(E).
Drew, Hedley V., M.R.C.S., 1882(E).
Drysdale, John H., M.R.C.S., 1889(E).
Duckworth, Herbert C., L.A.H., 1922(I).
Duffus, James, M.B., 1881(S).
Duigenan, John J., L.R.C.S., 1877(I).
Dunn, John H., M.B., 1920(I).
Dunne, John, M.B., 1922(I).
Dustan, Henry, M.R.C.S., 1874(E).
Dwan, John H., L.R.C.P., 1889(I).
Dwyer, John, L.R.C.P., 1915(I).
Dwyer, Joseph B., L.R.C.P., 1917(I).

Eager, Mervyn, M.R.C.S., 1903(E)
Eames, Edward Thomas P., M.R.C.S., 1892(E).
Eddowes, William, M.R.C.S., 1861(E).

Edwards, Frank P., M.R.C.S., 1900(E).
El Aguizy, Aly M., M.B., 1920(E).
Eliason, Joseph E., M.B., 1923(I).
Elliott, Harry S., M.R.C.S., 1892(E).
El-Makkawi, Mohammed M., L.R.C.P., 1925(E).
Engelbach, Harold A., M.B., 1895(I).
English, Geoffrey D., M.B., 1922(E).
Evans, John, L.A.H., 1874(I).

Fabien, Lewis, M.R.C.S., 1910(E).
Fahmy, Nashed, M.R.C.S., 1915(E).
Fairbridge, Francis S., L.R.C.P., 1889(S).
Farquharson, Charles H., L.R.C.P., 1900(E).
Farris, Sadik, M.B., 1921(E).
Faruqi, Shaikh M. A., M.B., 1917(E).
Fearnley, William, L.R.C.S., 1875(S).
Fehrsen, Frederick O., M.R.C.S., 1916(E).
Feilden, Frederick E., L.S.A., 1900(E).
Ferguson, Mary M. G., M.B., 1916(S).
Ferran, Theresa A., M.B., 1921(I).
Fielder, Sidney, L.S.A., 1889(E).
Fink, Lawrence G., M.B., 1892(S).
Fisher, Francis C., L.K.Q.C.P., 1877(I).
Fisher, John B., L.A.H., 1876(I).
Fitzgerald, Daniel A., M.B., 1919(I).
Fitzgerald, John C., L.R.C.P., 1924(I).
Fitzgibbon, Maurice, M.B., 1904(I).
Fitzpatrick, Patrick, M.B., 1918(I).
Flecker, Hugo, M.B., 1912(Col).
Fletcher, John H., M.R.C.S., 1893(E).
Flynn, Ernest J. M., L.R.C.P., 1884(I).
Flynn, John, M.B., 1887(I).
Foley, William F., M.B., 1922(I).
Fox, Herbert, M.B., 1897(E).
Fox, Norman M. D., L.R.C.P., 1921(S).
Fox, Otho P., L.R.C.P., 1921(S).
Frazer (Mrs.), Jane M., M.B., 1912(S).
Frederick, Ernest V., M.R.C.S., 1916(E).
Freedman, Tobias, M.B., 1923(I).
Freeman, Denis W., M.B., 1883(I).
Freeman, Jack, M.B., 1923(E).
Frood, Thomas M., L.R.C.S., 1887(I).
Frossard, Philip E. F., M.R.C.S., 1917(E).
Fulton, James, M.B., 1890(I).

Gabbe, Siegfried D., M.B., 1923(I).
Gabites, Frederick C. M., L.M.S.S.A., 1919(E).
Galbraith, James B. D., M.B., 1917(S).
Galvin, John S., M.B., 1916(S).
Garahy, John, M.B., 1923(I).
Gasperine, John J., M.R.C.S., 1916(E).
Gay, Charles W. E., M.R.C.S., 1877(E).
Gibbes, John M., M.R.C.S., 1866(E).
Gibson, Arthur K., M.B., 1916(S).
Gilford, Dorothy, M.R.C.S., 1917(E).
Gill, Gurdial S., M.B., 1919(S).
Gillespie, Mary B., M.B., 1918(S).
Girgis, Eskander, M.B., 1923(E).
Glanville, Mark, M.R.C.S., 1887(E).
Glissam, Francis R. D'A., M.B., 1904(E).
Godfrey, Benjamin G., M.R.C.S., 1875(E).
Goldberg, Joseph, M.R.C.S., 1925(E).
Goldsmith, Henry, L.R.C.P., 1925(E).
Goodchild, Thomas A., L.R.C.P., 1889(I).
Gordon, John, M.B., 1872(S).
Gornall, Thomas B., M.B., 1899(S).
Gould, Charles H., M.R.C.S., 1913(E).
Gould, John E., M.R.C.S., 1888(E).
Goulston, Arthur, M.R.C.S., 1888(E).
Grace, Jeremiah, L.R.C.P., 1906(I).
Gracey, Daniel I., M.B., 1921(I).
Graham, Alfred S., M.B., 1920(E).
Graham, George R. M., L.K.Q.C.P., 1884(E).
Graham, Gilbert M., M.B., 1911(S).
Graham, William M., M.B., 1893(I).
Graham-Hodgson, Harold K., M.B., 1916(E).
Grant, David R., M.R.C.S., 1925(E).
Grant, Edward A., M.B., 1922(I).
Gray, James J., L.R.C.P., 1894(S).
Green, Cyril A. H., M.R.C.S., 1924(E).
Greenwood, Cecil D., L.S.A., 1883(E).
Griffen, Vincent D., L.R.C.P., 1910(S).
Griffith, James De B., M.B., 1874(I).
Grimmett, Roger S., M.C.P. & S., 1924(Col).
Grobler, Paul J., M.B., 1923(I).
Grove, Frederick P., M.R.C.S., 1901(E).
Groves, Ernest J. C., M.B., 1905(S).
Guilfoyle, Denis P., M.R.C.S., 1918(E).
Guinness, Gershom W., M.B., 1896(E).
Gunewardene, Hubert O., M.R.C.S., 1919(E).
Gwynn, Neville C., M.R.C.S., 1897(E).

Harling, Harry S., L.R.C.P., 1909(S).
Ho Asjoe, Salomon, L.R.C.P., 1922(S).
Homer, Charles, L.R.C.P., 1908(S).
Hooper, Henry S. C., M.R.C.S., 1914(E).
Hulme, John W., M.R.C.S., 1922(E).

John, John R., M.R.C.S., 1917(E).
Johnston, Henry S., L.R.C.P., 1908(I).
Jones, Ralph, L.M.S.S.A., 1913(E).
Jones, William A., L.M.S.S.A., 1922(E).

Kelly, Daniel, *M.C.*, L.R.C.P., 1915(I).
Kelly, Ignatius P., M.B., 1911(I).
Kerans, Robert, L.R.C.S., 1864(I).
Kumar, Gautam, M.B., 1922(Col).
Lambert, Alexander C., *M.C.*, M.C.P. & S., 1916(Col).
Lauder, Harold V. R. T., M.R.C.S., 1923(E).

MacCarthy, Charles T., M.B., 1923(I).
McCorkell, Andrew E., M.B., 1922(I).
McCormack, Michael J., L.A.H., 1914(I).
Macpherson, James S., C.M.G., L.R.C.P., 1886(S).
Magill, Robert, L.R.C.S., 1872(I).
Maguire, Joseph, L.R.C.S., 1887(I).
Matthews, Vivian M., M.R.C.S., 1922(E).
Mifsud, Alfred E., L.R.C.P., 1886(E).
Mill, William, M.R.C.S., 1882(E).
Moorshead, Charles W., L.S.A., 1896(E).
Morrison, David, M.B., 1894(E).
Mullane, Patrick, M.D., 1880(I).

Nicolas, John D., L.R.C.P., 1904(S).

Ogilvie, Nettie, L.R.C.P., 1889(S).
O'Grady, Francis R., L.R.C.S., 1868(I).
Oliver, Stuart, L.S.A., 1885(E).

Paling, John M. A., M.B., 1922(Col).
Perkins, Herbert F., M.B., 1902(I).

Quirk, Edward J. J., M.B.E., M.R.C.S., 1908(E).

Ralston, Frederick G., M.B., 1899(S).
Reid, Oswald J., M.B., 1920(Col).
Richards, Arthur J., L.R.C.P., 1893(S).
Rom, Solomon J., L.R.C.P., 1922(S).
Ross, Donald M., L.R.C.P., 1903(E).

Samut, Carmel, M.D., 1915(Col).
Sheridan, John J., M.B., 1921(I).
Sisk, Maurice, M.B., 1895(I).
Smartt, The Hon. Sir Thomas W., K.C.M.G., L.R.C.S., 1878(I).
Stokes, William, M.D., 1878(I).
Sumner, Theodotus J., M.B., 1923(S).

Taaffe, Robert H. F., L.R.C.P., 1910(I).

Van Ryck de Groot, Stanley, H. R., L.S.A., 1892(E).
Vellema, Douwe M., M.B., 1923(I).

Wheat, Ernest G., M.R.C.S., 1908(E).
Whyte, Henderson, M.R.C.S., 1915(E).
Wilkin, Richard McK., L.R.C.P., 1900(I).
Winship, William A., L.S.A., 1885(E).
Woods, Thomas F. M., M.B., 1926(I).

THE TREATMENT OF RHEUMATISM IN GERMANY.

A VISIT TO SPAS AND CLINICS.

A PARTY of 20 Englishmen has recently been to Germany to study the methods of treating rheumatic patients, and the organisation for insured patients, in the German cities and spas. The party included representatives of a committee of the British Red Cross Society, the International Society of Medical Hydrology, and several of the English Approved Societies.

In Hamburg, Berlin, and Dresden, it was found that the so-called "rheumatic diseases" formed the great majority of those under treatment by physical remedies. Some of the best known clinics, such as Prof. E. O. Plate's at Hamburg and Dr. August Laqueur's at Berlin, are special departments of general hospitals. They include (1) a complete hydrological installation, with various methods of treatment by friction baths and douches, steam and hot air; and (2) apparatus for light baths and electrical and mechanical treatment. There are, however, in these and other cities a number of other institutions, some of them very large, established by the public insurance organisations (sick-clubs), in which physical treatment is the main feature. To these institutions all kinds of minor cases, both surgical and medical, are referred by insurance practitioners for treatment, and advice is given in many specialised subjects. At some of these "ambulatoriums," to which no beds are attached, 800 cases or more are treated daily.

The visit to Berlin was timed to enable the party to take part in the inaugural meeting of a German committee that has been formed to promote research upon, and treatment of, rheumatic diseases. This was held on August 2nd at the clinic of Prof. A. Bier, under the chairmanship of Prof. Dietrich (Berlin). Among those present were Prof. Bier, Prof. Hoffman, Prof. Kuttner, Dr. Zimmer, and Dr. G. Hauffe (Berlin), Dr. W. Krebs (Aachen), Dr. J. van Breeman (Amsterdam), and Dr. Fortescue Fox, Dr. D. A. Coles, Dr. M. B. Ray, Dr. Hector Munro, Dr. C. E. Sundell, Dr. W. S. C. Copeman, Dr. Maurice Shaw, and Dr. M. Mautner (London), besides representatives of the Railways, Coöperative, Building, and other English approved societies. A paper on the facilities at present available in Germany for the physical treatment of insured persons was read by Dr. Max Hirsch (Berlin). The new German organisation will form a branch of a central committee on rheumatism established by the International Society of Medical Hydrology.

After this conference the medical representatives from England and Holland visited a number of spas which are chiefly concerned in the treatment of rheumatism. Their object was to observe: (1) the methods of treatment actually in use; (2) the various arrangements made for industrial patients, both men and women, at the health resorts, and (3) the existing facilities for medical research in rheumatic diseases. Considering the large numbers of incipient and chronic cases of all forms of rheumatism gathered together at the spas and the city clinics, they also had in mind the possibility of instituting further systematic research to be carried out concurrently with treatment. To assist in their investigations the relevant facts and figures were freely placed at their disposal in the course of many conferences with governmental and municipal spa authorities, officers of industrial societies, and spa practitioners. They found that in regard to special research good work had already been done, whilst

more was in contemplation. A well-equipped institute of balneology, supported by the municipality, has been opened in the present year at Wiesbaden under the direction of Dr. Harpreder, and research laboratories are being added to the Landesbad at Aachen.

In Germany the problem of rheumatism arouses deep and widespread interest. Not only are the many industrial organisations, the public health authorities, and the spa practitioners concerned with it, but also the medical profession as a whole, and the spa federations and municipalities. The problem itself is in many ways the same as in England, and the information gathered in Germany is likely to be of considerable value in this country.

PUBLIC HEALTH IN 1926.

SIR GEORGE NEWMAN'S REPORT.[1]

THE annual report of the Chief Medical Adviser to the Minister of Health must of necessity, as Sir George Newman remarks in his summary, consist of a body of extremely varied, in fact almost miscellaneous, information and opinion. "The progress of a nation's health," he observes, "is . . . a passage through the centuries, and founded mainly on an exclusive regard to the immediate interests and problems of human survival. We are dealing with the proposition of remaining alive in the world, of enlarging the content of life, of increasing its capacity. . . . Can any enterprise be greater? . . . There is hardly a department of the State which will not, consciously or unconsciously, make a contribution to the condition of the public health."

Sir George Newman stresses as the very foundation of the nation's welfare the sanitary duties laid upon local authorities, and enumerates the seven services in which the science and art of preventive medicine have expressed themselves during the last generation. These are: Ascertainment of the situation (notification, &c.); maternity and child welfare; school medical services; national health insurance; Poor-law medical services; Factory Acts; and a series of special means for direct attack upon some of the more insidious and incapacitating maladies, such as small-pox, tuberculosis, venereal disease, and mental decay. He affirms his belief that these seven activities have changed the face of England and, moreover, for all their limitations and imperfections, they have been copied all over the world. "In spite of an enormous increase of population," he says, "without increase of home territory, the total death-rate and infant mortality-rate of the nation have been halved inside our generations. The mortality of childhood is one-third of what it was 80 years ago, and the expectation of life to-day is 17 years longer than in 1876. . . . Never before in the history of this country has so much been attempted by the State on behalf of the health of the people as now. . . . We have in England to-day such opportunity as we have never had before to conquer preventable disease and to ensure personal health and increased capacity." Sir George Newman speaks warmly of the value of health propaganda, even though it is often unbalanced and ill-informed; he cites as its chief fault a lack of sense of proportion, a criticism which we have had to make with some frequency in these columns.

Vital Statistics.

The report commences with a review of the vital statistics, and summarises the report of the 1921 census, recently issued. The indirect results of the war in belligerent populations were as serious as the direct effects. For instance, the proportion of males aged 20–40 fell between 1911 and 1921 from 155 to 141 per 1000. The birth-rate for 1926 was 17·8, the lowest on record, but this country is nearer the neutrals than Germany owing to its favourable infant mortality-rate, reduced last year to 70 per 1000, and thus representing a saving of 40,000 lives above the average. The daily ebb and flow of workers in and out of the metropolis has an important bearing on the spread of infectious diseases. The death-rate in 1926 was 11·6 per 1000, representing 19,037 fewer deaths than in 1925. Increase in the mortality from diphtheria, cancer, and diseases of the heart was more than counterbalanced by the decline in deaths from influenza, pneumonia, bronchitis, and the diseases of infancy. The death-rate in the first four weeks of life and among illegitimate babies still calls for improvement. All classes suffered badly from whooping-cough, and the incidence of diphtheria, poliomyelitis, and small-pox showed an increase. In England and Wales during 1926, among insured persons alone, a total of 28¼ million weeks' work (the equivalent of 12 months work of over 540,000 people) was lost through sickness. The labour and expense entailed in the care of these people, and the fact that they were breadwinners for others, must be remembered in assessing the loss to the nation.

Accuracy of Statements of Causes of Death.

In discussing death certification the report maintains that official records of mortality suffer from serious and remediable defects, falling under two headings:—

(1) Relevant information throwing light upon the real cause of death is available but not presented; thus, deaths from motor accidents have almost doubled in six years, although the ratio may not have increased; but there is no analysis of the mishaps, and we do not know how many of the 3368 victims were drivers, passengers, or pedestrians respectively. Here is an example where exact information is available, but is not disclosed. Dr. Stevenson's investigation reveals that it is the three- or four-wheeled vehicle which kills small children; the well-braked tram is safer than the car, and the mobile motor cycle is more dangerous to its rider than to the pedestrian. A decline in mortality should therefore accompany improvement in brakes.

(2) Information is not available and ignorance may be disguised by verbalism. Many of the deaths ascribed every year to cancer of the liver and gall-bladder must in reality be due to primary growths in other organs, and any attempt to measure the effect of means of treatment are seriously prejudiced by this laxity in certification. There is no doubt, the report holds, that our knowledge of the real toll of human life taken by alcoholism would be appreciably extended by a confidential death certificate.

Discussing *status lymphaticus*, the report asks pertinently what means practitioners have of knowing if the thymus of a person who has died suddenly is or is not enlarged. Prof. J. A. Hammar's recent monograph reveals an enormous range of weight within strictly normal material. Status lymphaticus, to quote Prof. M. von Pfaundler, has been denatured into a "pandiathesis." To diagnose it on thymus weight alone is unscientific. This is not to say that there does not exist a human type prone to die suddenly without adequate cause; the type was recognised hundreds of years ago, but the attempt to provide precise anatomical criteria has failed. The term "status lymphaticus" on a death certificate is characterised as an example of the misuse of the jargon of endocrinology, nutritional chemistry, or psycho-analysis to explain the origin of symptoms and signs. Sir George Newman considers that it is hardly too much to say that the fabric of the art and practice of preventive medicine is founded upon the accuracy of the registration of the cause of death. Unless and until a nation has adopted a sound system of vital statistics—the book-keeping of humanity—there can be no evaluation of assets and liabilities.

Epidemiology.

In 1926 10,146 cases of *small-pox* were notified, the most striking feature being the very large number of cases [2] in the county of Durham. The report states

[1] H.M. Stationery Office. Pp. 281. 3*s*.

[2] See THE LANCET, 1926, ii., 1175; 1927, i., 39; 1927, i., 238.

clearly that the time has come for the public to choose between small-pox and vaccination, and to realise the difficulties attending the control of the present mild outbreak. Small-pox, severe or mild, is a menace which should be prevented; our duty is to rid the country of it, and successful vaccination and re-vaccination constitute an efficient protection.

There were 2739 cases of enteric, a decrease of 40 on 1925, two cases of bubonic plague, one of typhus, no cholera, but an increase in dysentery.

A report has now been issued giving exhaustive analysis of the information yielded by the inquiry into *scarlet fever*. The Committee concluded that there are not sufficient grounds for prescribing a routine period of detention in hospital of more than four weeks for uncomplicated cases; that hospital and home treatment must play a fundamental part in a well-ordered public health system; that some of the accommodation reserved for scarlet fever might be better used for pneumonia, measles, or influenza; and that current rather than terminal disinfection is the more rational procedure. The report speaks very hopefully of the prospects of the Dick as well as of the Schick processes.

There were 51,069 cases of *diphtheria* during the year, with 2994 deaths, a serious burden of disease and mortality. Local authorities are advised to aim primarily at offering protection to the pre-school population through infant welfare or special clinics; it is essential for the organisation to be prepared beforehand, the staff trained and public opinion enlightened. The vast majority of parents are still completely ignorant of the possibility of protection. The large increase in mistaken diagnoses in London can be taken fairly to suggest that greater care is being taken in notifying suspicious cases.

A slight, mild epidemic of *influenza* broke out in London early in 1926 and spread slowly northwards. The death-rate was low, mainly due to bronchial pneumonia. Convalescence was rapid, but often accompanied by persistent cough. Among the researches carried out under the Auxiliary Scientific Investigation Fund was the prosecution of a study of the respiratory flora of apparently normal persons, in the hope of elucidating some of the problems of epidemic influenza. There was no increase in the pneumococcus during the late autumn of 1925, although there was some increase in Pfeiffer's bacillus. In 1926 the situation completely changed; the pneumococcus rose from under 10 per cent. to 60 per cent. between October and November, and remained up till the end of January. Pfeiffer's bacillus also increased, less notably, but in January suddenly became very prevalent. It thus appears that a sudden increase in the frequency of healthy carriers of pneumococci precedes an epidemic manifestation of influenza.

Infections of the Nervous System.

While the reported prevalence of cerebro-spinal fever and encephalitis lethargica was less than that of 1925, there was a very striking increase in poliomyelitis and polio-encephalitis, the notification figures exceeding all previous records. The report does not think it safe to assume that this presages a continued decline in the incidence of encephalitis lethargica, and finds even less reason to ascribe the improvement to any human intervention. An inquiry into the nature and amount of resulting disability has been held, and will, it is hoped, provide a reliable guide to the best after-treatment. The encephalitis unit at Winchmore Hill seems likely to prove most useful as a clearing house for observation, classification, and allocation. The work of departmental officers on the subject is summarised.

A special chapter is devoted to acute poliomyelitis on account of its excessive prevalence during the year. The history of the disease and of the 1926 outbreaks is reviewed. The conclusion arrived at is that Wickman's original findings in favour of contact transmission have been amply confirmed. Sufferers from an acute, mild, or atypical form, healthy persons who have been in contact, and chronic carriers who have apparently quite recovered, may all convey the infection. There is no satisfactory proof of natural transmission by biting insects or by milk. It must be remembered that the incubation period varies within wide limits, and that many cases are never notified. Three out of the five outbreaks occurred in districts accessible by sea or river, and infection may have been conveyed to Kent from Brittany. The term "infantile paralysis" is condemned as a misnomer and the disease defined as "an acute infectious fever which may or may not proceed to invasion of the nervous system." The pathology, symptoms, diagnosis, and treatment are reviewed and commendation given to Walshe's three-stage classification—i.e., (1) general infection, (2) subarachnoid invasion, (3) involvement of the grey matter. The essential of treatment is said to be coöperation between medical officer of health and local practitioners, and improvement in notification is urged. A review of treatment measures indicates that, if paralysis occurs, permanent crippling can only be avoided by prompt and long-continued orthopædic treatment, which should be secured as part of the scheme for maternity and child welfare.

Cancer and Tuberculosis.

The mortality-rate per million was 961 for tuberculosis and 1362 for cancer. The work of the departmental committee during the year included investigations into the statistics and radiological treatment of cancer of the breast and uterus, and into the value of serological tests for diagnosis. An unusual research compared 500 patients of cancer of the breast with 500 controls; it showed that many supposed predisposing conditions had no influence in encouraging cancer. The predisposing significance of injury, infertility, and chronic mastitis was confirmed. The urgent need for further information leads to the suggestion that clinical notes should be supervised by someone of greater experience than the student, and that efforts be made to obtain and maintain records as complete as possible. A form of follow-up system is being instituted in the large county borough hospitals, and it is hoped to extend it. All clinical data collected are submitted to careful analysis, and if the deductions are adequately supported a report is prepared for the use of the profession. Six such reports and five circulars to public health authorities have been issued.

The returns of medical officers of health indicate that there is still room for further improvement of notification of tuberculosis; many cases are not notified before death and still more only during the last six months of life. The decline in the number of deaths from phthisis is gratifying but unexplained, save as the result of the public health campaign. On Feb. 1st, 1927, there were 442 dispensaries in England, 69 special centres, and 367 tuberculosis officers. The work has advanced considerably in most districts; there is increased coördination under orthopædic schemes and with school medical officers; X ray diagnostic installations have been provided at many dispensaries and private doctors show increasing readiness to send cases. There is need for careful comparison of the results of sanatorium and home treatment. Experience has shown that adults cannot be trained in new occupations, and that treatment must be followed by a long period of safeguarding, most effectively secured in village settlements. Such provision as is made by the "Factory in the Fields" and the Hull Care Committee may prove useful. The time is considered ripe for a few colony schemes to be tried experimentally. The second report on "sanocrysin" from the Medical Research Council[3] concluded that it is of value in certain carefully selected cases only. The Calmette method is being investigated.

Venereal Disease.

At the close of 1926 there were 190 treatment centres in England and Wales; the ratio of attendances to cases showed a further increase during the year. Careful follow-up work has reduced the number

[3] THE LANCET, 1926, ii., 181.

of defaulters, and the location of centres apart from hospitals does not seem to deter patients. A warning is sounded against inadequate treatment. A short course of arsenobenzol and mercury is often followed by relapse, and it is important that medical officers should be convinced of the necessity for prolonged treatment. Practitioners are reminded that the signs of venereal disease in pregnancy are often absent or very slight, and are urged to follow up the clue given by infected children or stillbirths. Treatment of the congenitally syphilitic child, also, should be commenced while the disease is latent and doctors should act on suspicion. Experience in Plymouth has shown that detection of the disease before it is manifest would considerably raise the standard of health of the population.

Maternity and Child Welfare.

This work has been expanded and the gloomy forebodings as to the effect of the strike on the physique and vigour of school-children were not fulfilled, partly as the result of provision of meals at school and the distribution of free milk. The maternal mortality-rate was 4·12, a slight rise. The importance of making provision for treatment of puerperal pyrexia and for antenatal supervision is stressed. There are now 772 antenatal centres, 105 homes for unmarried mothers, and 2324 infant welfare clinics. The report remarks that money expended on centres and health visitors brings perhaps a greater return than any other form of expenditure on maternity and child welfare, and points out that the Adoption of Children Act, 1926, may prove prejudicial to the welfare of illegitimate children, whose foster mothers may adopt them to avoid supervision. Although provision for ophthalmia neonatorum is good in most areas there still seem to be administrative loopholes, and the responsibility for notification has now been laid wholly on the medical practitioner.

The care of the pre-school child is described as a problem awaiting satisfactory solution. Dr. Margaret Hogarth's examination of 1000 unselected children of 3 years of age revealed a large amount of preventable disease, but also created an impression of a much higher standard of parental care than was evident ten years ago. The most striking feature was the prevalence of rickets, the forerunner of all that is required to produce a C3 nation. The effects of treatment by sunlight and cod-liver oil appear to wear off when the course is discontinued. Diseases of the throat, nose, and ear formed an important group of defects, and the prevention of otitis media and of the sequelæ of enlarged tonsils and adenoids alone make systematic supervision desirable. Special attention is drawn to the danger of forgetting the mental development of the child through focusing attention on his physical welfare. The Conference on Child Welfare, held at Geneva in September, agreed to investigate the value of preventive measures against scarlet fever, diphtheria, and measles, to prepare a note on the arrangements in different countries for the training in pediatrics of doctors, nurses, and health visitors, and to hold an inquiry into infant mortality in selected districts over a period of 12 months. The areas chosen in England were Sunderland and parts of Staffordshire (high rate); Croydon and Oxfordshire (low rates). This is the first international inquiry of the kind, and is to be clinical rather than statistical.

National Health Insurance.

The number of persons entitled to benefit in 1926 was 14,102,000, one-third of the population, breadwinners on whose health and capacity the living of the great majority of the remainder was dependent. Increase in the number of certificates during the strike and in the aggregate cost of prescribing are commented on. Late in the year six full-time regional dental officers were appointed and dental benefit is now almost universal. More than £400,000 a year has been allocated to ophthalmic benefit. The statement that the service "does not tend to the prevention of disease" is strongly combated and the educational work carried on by panel committees is reviewed.

Food in Health and Disease.

Gratification at the awakening of public interest in diet is expressed, and caution and discrimination in making didactic statements are called for. Recent research has shown that the keynote of a successful diet is variety and has thrown doubt on the belief that primitive man was better off in regard to his diet than man of the present day. It is pointed out that this country is eminently suited to the production of the essential foods, milk, and vegetables, and that they should be distributed widely and cheaply enough for them to be in everybody's daily diet. Describing the improvements in milk preparation the report states that there has been a satisfactory increase in the amount of Grade A (T.T.) milk supplied. Great stress is laid on coöperation between M.O.H., public analyst, and sampling officers. There is immense and continuing improvement in purity of foodstuffs, and more tests for preservatives were carried out during the first two months of the year than during the whole previous decade. Analytical methods need revision, especially for traces of boric acid, and this has been the main work of the laboratory. Forty-eight food-poisoning outbreaks are reviewed.

Research Work.

Work on the hæmolytic streptococci has been published and supports the view that these organisms are the cause of scarlet fever. Some research on pneumococcal virulence and immunity will be completed shortly. A good deal of statistical analysis was done for the Scarlet Fever Committee and on school anthropometry. The factors in puerperal mortality have been investigated, as have also the incidence of disease in cotton-spinners in wet and dry sheds, and health in the printing industry. It is becoming clear that the conception of herd immunity as distinct from individual immunity is a very important one for prophylaxis. The steady increase in the number of requests for advice and help in research work arising out of the ordinary duties of medical officers is viewed with great satisfaction as the most valuable work of the department. A review of progress in artificial light treatment lays stress on the necessity for medical control and supervision. A disquieting increase is noted in the deaths from anæsthesia, and the Ministry is anxious to ascertain the real fatality ratio and to relate it to different anæsthetics and methods of administration.

International Health.

The report concludes with a review of the work of the League of Nations Health Committee, the Office International, the International Sanitary Conference in June, and the International Pacific Health Conference.

Other chapters deal with the Port Sanitary Authority and the Poor-law.

THE SPREAD OF TUBERCULOSIS.

EXAMINATION OF CONTACTS.

THE eradication of tuberculosis depends on the solution of a problem that has hitherto baffled an army of investigators. The problem is concerned with the manner of its spread. A husband, for instance, is consumptive; his wife, subject to daily and nightly opportunities for infection, apparently escapes the disease. One child, perhaps, dies of miliary tuberculosis, two or three children become "tuberculous seedlings," and after a school career, chequered by frequent visits to clinics, dispensaries, and sanatoriums, reach adult life without revealing any obvious signs of tuberculous disease. In another similarly infected family, by contrast, the children pass through school life apparently free from disease, but when adolescence is reached, one or more of them suddenly develops signs of active phthisis, possibly many years after the death of the consumptive parent. In some cases the tragedy of "Wuthering Heights"

is repeated and a family is decimated; in others a single member of the second generation succumbs. Not infrequently, again, an adolescent or young adult develops phthisis although the family bill of health is clear of any taint of the disease and no source of infection can be traced. The origin of the chronic fibroid type of tuberculosis common in later life is equally uncertain, and it is often doubtful in any particular case whether the infection is of recent date or whether declining vitality has caused a smouldering fire to blaze.

Where much is obscure certain facts are patent. That a member of a family suffering from manifest tuberculosis is a grave source of danger to all its members has been recognised since Koch's discovery, and, indeed, was recognised before it, and provision for the examination of contacts is considered to be an essential part of all antituberculosis schemes. When a case of tuberculosis is notified a health visitor calls at the home of the sufferer, and though the adolescent members of the family are apt to decline to attend the dispensary, maternal anxiety can usually be depended upon to produce two or three infants or children of school age. These are martialled before the tuberculosis officer, a physical examination is made, the signs of manifest tuberculosis are lacking, and a much-relieved parent returns with her wondering offspring to the home where infection abides. Finally, a record of negative results for the contacts is duly returned to swell the satisfactory statistics of the county medical officer, regardless of the fact that to pronounce an infant "free from any trace of the disease," because auscultation and percussion fail to reveal obvious signs of tubercle is about as useful as to palpate its chin and report that there is no evidence of a beard.

The familial spread of tuberculosis can never be prevented by such perfunctory methods and slipshod work. It is notorious that pulmonary tuberculosis is only recognisable by physical signs in the chest when the disease is firmly established. The "early case" of the sanatorium is not an early case of tuberculous infection; the sound of cracking timbers, the fall of decayed masonry are not the signs by which a housing inspector determines incipient decay in a building. For too long the threatenings of imminent collapse have been mistaken for the first warnings of danger. The slogan of the propagandist, that consumption is curable in its early stages, is only true if applied to stages whose detection requires far greater delicacy than that of palpation, percussion, and auscultation.

In this connexion the work of E. L. Opie and F. M. McPhedran,[1] of Philadelphia, deserves more attention than it has yet received in this country. Their investigation of tuberculous contagion in families has been based upon evidence obtained from the intracutaneous tuberculin test, correlated with information from skiagrams, and supplemented by the usual physical examination. In this way both contact and non-contact families have been subjected to a searching examination, the results for each family being set out on an ingenious record card showing diagrammatically the condition of each member as revealed by the various tests employed. The age of each member is also shown and the duration of exposure to infection in the case of "contact" families is graphically indicated.

The tuberculous are divided into (*a*) those with manifest disease recognisable by physical signs, sputum tests, &c., and (*b*) those with latent disease only revealed by radiographic examination and tuberculin tests. Latent infection in the child is due to implantation of the tubercle bacillus in the lymphatic system of the lungs and is revealed by nodes in the lung field or by enlargement of the tracheobronchial glands; the radiographic appearance of these foci has been compared with post-mortem findings and their significance has been proved. The adult type of latent infection—which is, however, occasionally found in children—is characterised by involvement of the lung apex, which may be the seat of tuberculous deposits or may exhibit a thickening of the apical cap. It is claimed that the X ray findings are confirmed by the intracutaneous test, though the latter is more delicate and supplies evidence of infection at an earlier stage.

If the conclusions of Opie and McPhedran are correct, they ought to be generally applied as far as may be possible. They are as follows:—

1. When latent tuberculosis is taken into consideration, tuberculosis exhibits the characters of a contagious disease and affects all children of households within which some members, suffering with tuberculosis, scatters tubercle bacilli.

2. Recognition of latent apical tuberculosis has demonstrated that tuberculous infection is transmitted to adults and to adolescent children, and has shown that approximately one-half of the partners of husbands and wives with open tuberculosis are infected after marriage.

3. Duration of exposure to open tuberculosis is an important factor in determining the character and severity of the resulting infection; in instances of recognisable tuberculosis of tracheobronchial lymph nodes the average duration of contact with tuberculosis has been approximately four and a half years and instances of latent apical tuberculosis nearly twice as much.

4. Dispensaries for the care and control of tuberculosis should be organised so that spread of latent infection within the family may be recognised and prevented. A chart for each family, depicting the severity of latent and manifest disease disclosed by quantitative tuberculin reactions and roentogenological examination, will forcibly direct attention to effective means of control.

5. Latent tuberculosis often becomes manifest. Certain forms of latent infection foretell the approach of clinically recognisable disease. These are (1) infection recognisable by the tuberculin reaction during the first two years of life, (2) tracheobronchial tuberculosis in children recognised by roentogenological examination, and (3) latent apical tuberculosis in adolescent children. Children with these forms of tuberculous infection should be examined at frequent intervals and treated as though they had recently arrested tuberculosis.

6. All adults in whom latent apical tuberculosis has been recognised should receive the same care as patients with arrested phthisis.

[1] The Contagion of Tuberculosis. By Eugene L. Opie, M.D., and F. Maurice McPhedran, M.D. The American Review of Tuberculosis, October, 1926. Spread of Tuberculosis within Families. By Opie and McPhedran. Journal of the American Medical Association, No. 1926.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Abortion in Russia and in Germany.

THE Breslau Medical Society recently discussed the consequences of legalised abortion in Russia. The new legislation in that country recognises no difference between children born in and out of wedlock, and the Soviet has decreed that any abortion sanctioned by a medical commission and performed in a public hospital by a doctor will not be regarded as criminal. As a result of this decree so many women applied for abortion that the hospitals were soon overcrowded and private sanatoriums had to be used. The Soviet authorities intended that abortion should no longer be concealed, and that women who wished their pregnancy to be interrupted should be able to get this done under favourable circumstances. They wanted to prosecute those who make a business of artificial abortion, and not the mothers who seek to have the operation performed. Needless to say, the result has been a great increase of abortion, and according to Dr. Niedermeyer, who opened the discussion, only a nation of such vitality as Russia can stand such legislation. Abortion performed by

quacks for money is now rare, though it has not yet disappeared. Septic complications have very much decreased, as abortion in the great majority of cases is performed under hygienic conditions. This is, however, the only favourable aspect of the new regime. It is stated that repeated abortion causes various troubles, and Russian gynæcologists in this connexion report injuries to the uterus and neighbouring organs, concretions which have produced severe complications at later pregnancies, and mental disturbance. Placenta prævia and atony of the uterus during labour have become more common. Dr. Niedermeyer warned Germany not to follow the Russian example.

In the discussion Dr. Rosenfeld stated that although artificial abortion is a criminal offence in Germany, nevertheless about 500,000 abortions are performed annually—some even put the figure at 800,000—and only 1000 to 2000 offenders are prosecuted. The number of cases in which pregnancy is prevented by contraceptives and pessaries cannot be ascertained by statistical means. Germany has, notwithstanding, an annual surplus of more than half a million. Since legislation against artificial abortion is thus ineffective, it is desirable that it be performed not by quacks but by qualified medical men. Prof. Fraenkel, head of the gynæcological clinic at Breslau University, said that abortion, even if performed under the most favourable conditions, led to disease much more frequently than did normal birth. Leaving aside all political and social arguments, he warned the faculty against performing abortion on other than strictly medical grounds.

Under the present German criminal law interruption of pregnancy is always a crime, no exception being made for medical men, even if it is urgently necessary in order to preserve the life or health of the mother. Prosecution of medical men has been rare, but has occasionally been proceeded with on anonymous and other information. It is therefore satisfactory that the High Court at Leipzig has lately given a judgment which will protect medical men against these unpleasant incidents. The opinion of the medical profession, and of some legal authorities also, that a special professional right exists to interrupt pregnancy on urgent necessity is not maintained by the High Court, and a verdict of "not guilty" has been given on other grounds, less comprehensible, but none the less satisfactory to the medical profession. The court states that the interruption of pregnancy by a medical man may be technically criminal abortion . . . but that there is no criminal offence unless there is also criminal intent. The life of the mother must be valued higher than the life of the child in the womb, and if an abortion is the only chance of saving the mother's life it is not to be considered criminal. It may be noted that the new criminal bill now under consideration contains a clause that artificial abortion is not criminal when performed by a qualified medical man who considers that according to the principles of medical science no other course can save the life or the health of the mother. The same principle holds good for perforation of the skull during childbirth.

Congress of Sick-Clubs.

The annual congress of sick-clubs under the Workmen's Insurance Act was held this year at Königsberg, where 1400 delegates met, representing 1½ millions of insured persons; the government was also represented. The president alluded to the care taken by the clubs not only of the sick, but also of convalescents and children; he also mentioned the agitation against the clubs in a sentence which, without mentioning the medical profession, was obviously directed against its leaders. Dr. Stein, of Geneva, spoke on the international insurance of workmen, and Prof. Adam invited the clubs to assist the work of the Association for Health Instruction; a resolution in favour of Prof. Adam's proposals being unanimously adopted. Other addresses urged the clubs to assist in the campaign against venereal disease, infant mortality, and occupational diseases. The meeting one more showed the strength and importance of the clubs. Their position has, unfortunately, been won partly in the face of medical opposition and to the prejudice of the profession.

X Rays in Hospitals and in Private Practice.

In Germany there is a marked tendency among the public to underestimate the work of private medical men, and to resort as much as possible to hospitals and sick-club institutions. The public believes that these institutions have more modern methods of cure than the average medical man or the private specialist, and that treatment is more effective if given at places where there is a large staff. So far as X rays are concerned this opinion is refuted by a recent statistical record, in which the injuries to patients in public and private institutions are compared. Of the 19 genuine recorded cases of damage due to X rays used for diagnostic purposes, 16 occurred in public institutions and three in private practice. Two of the cases were due to negligence and 17 to insufficient knowledge. Of 59 genuine cases of injury in the therapeutic application of X rays, 29 occurred in hospitals and public institutions, and 30 in private medical institutions. It is stated that in 22 of these cases the medical man was in no way to blame, but that in 15 cases negligence, and in 23 insufficient knowledge, must be supposed, the cases being divided equally among hospitals and private institutions. About 45 cases of injury were recorded in hospitals and sick-club institutions, where the work is often done by young doctors or even by nurses. The private practitioner, on the other hand, has to do the work himself and on his own responsibility. The injuries caused by Rontgen rays were severe; ten cases were fatal, and amputations were necessary in others.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the 1926 statistics of six towns, five county boroughs, and one borough:—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Diarrhœa under 2 years.	Infant mortality.	Maternal mortality from childbirth.
Bristol (383,300)	17·3	11·4	1·13	1·24	1·9	1·6	6·0	70	3·5
Croydon (205,900)	16·9	11·0	1·01	1·60	1·5	1·3	7·5	61	7·0
Coventry (127,800)	16·5	10·3	1·15	1·13	1·5	1·1	4·7	69	4·7
Bournemouth (90,100)	12·3	13·5	1·04	1·96	1·8	2·5	5·4	58	3·6
Great Yarmouth (57,760)	16·7	11·8	1·05	1·71	1·4	1·6	5·2	58	4·1
Scarborough (39,740)	16·6	13·4	0·95	1·84	1·8	2·7	4·6	71	3·0

Bristol.

Dr. D. S. Davies suggests that just as we have protected the nursing staffs in our hospitals from diphtheria, "so every school and every institution ought to insist upon the protection of its scholars against diphtheria."

Several houses at Bristol have become infested with a mite (*Glycyphagus domesticus*) found in Algerian fibre imported for upholstery. These mites breed rapidly, and carpets, walls, and floors are quickly covered with a fine coating of the insects, like dust. The condition is difficult to eradicate because the mite

has a resistant cystic stage. Dyeing of the fibre appears to destroy it. The British Museum has published a pamphlet on this insect, which suggests that the best way of avoiding the trouble is "to refrain from buying furniture stuffed with Algerian fibre."

The Bristol Corporation Act of 1926 contains a section requiring adequate ventilation for gas geysers. Dr. Davies mentions that there is an idea prevalent that when Bunsen burners are provided a flue is not necessary because combustion is more perfect and the risk of the production of carbon-monoxide is less. He finds, however, that among seven cases of fatal gas poisoning at Bristol the Bunsen flame was used in three, and that it is, therefore, necessary to have a flue fixed in every case. The report contains illustrations of the right and the wrong methods for securing ventilation for geysers.

The increase in the accommodation at the isolation hospital, postponed owing to the war, has now been completed and the 56 additional beds will be brought into use during the current year. Three nurses are employed to visit all kinds of infectious diseases at home. When a first case of measles occurs in an infant department, the class-contacts are excluded from the ninth to the fifteenth day and placed under the supervision of one of these home nurses. Bristol has been fortunate as regards small-pox. During the last 43 years there have been 102 introductions, 23 through the port. The total cases numbered 1243 with 127 deaths. Since 1917 there have only been two introductions, both through the port. One, in 1921, caused seven cases with one death, and the other, in 1924, one case with no death. Dr. Davies thinks that the value of isolation hospitals for scarlet fever is not put fairly when a comparison is made as regards return cases between home treatment and hospital treatment. His experience during the last six years in Bristol shows that 4237 primary cases removed to hospital were followed by 284 secondary cases, whereas 3918 home-treated cases were followed by 513 secondary cases. A chart in the report shows the great increase in poliomyelitis and polio-encephalitis in several of the counties during 1926, Leicestershire and Nottinghamshire being prominent examples. In view of the possibility of a similar increase in Gloucestershire, Dr. Davies gives a list of preventive measures. At a conference of representatives of the health committee, education committee, and board of guardians a resolution was passed expressing the opinion that post-encephalitics cannot be suitably dealt with under the Mental Deficiency Act, and that what is required is a healthy outdoor life under skilled discipline in an institution apart from mentally defective or insane persons. It was also pointed out that there is ample provision for present needs in the Poor-law hospital at Southmead, and that there is no justification for pressing the Ministry to sanction the provision of special accommodation for the Bristol area. Among the 48 notifications of ophthalmia neonatorum were two cases where infants blinded in both eyes were admitted to hospital for treatment from outside the city.

One of the health visitors "is now fully occupied in dealing with cases where increase or re-establishment of the supply of breast milk is desirable and the feeding and management of weakly children." This visitor gives lectures in turns at the 22 schools for mothers conducted by the Bristol Infant Welfare Association. Recommendations for the increase of the number (21) of health visitors are under the consideration of the Ministry of Health.

At the isolation hospital severe cases of scarlet fever improved rapidly with scarlet fever antitoxin, and it is suggested that the favourable mortality-rate—only one death among 515 admissions—may have been due to this cause. Of 50 samples of milk examined for tubercle three gave a positive result.

Croydon.

Dr. H. P. Newsholme reports that the public laboratory, provided jointly by the Croydon General Hospital and the Corporation, began work in April, 1927. The new clinic premises and sick nursery in Lodge-road came into use at the beginning of 192 and has proved a very real success. The nurser on the first floor provides accommodation for 12 ailin children under 5 years, also an isolation cubicle an a ward for two nursing mothers. The ground flo of the building accommodates the various clini required by the education and health committee The opening ceremony was performed by Princes Mary on May 18th, and early in 1927 the gift of mercury-vapour lamp was received from the mothe and workers at the South Croydon Infant Welfa Centre. The number of mothers who attended th antenatal clinic during 1926 was 659. The total birth were 3477.

Arrangements have been made with the Surre County Council for the admission of small-pox cas into Clandon Hospital; this enables the joint smal pox hospital at Cheam to be used as a sanatorium f tuberculosis. The number of beds at Cheam ha been increased from 50 to 85 since April, 1926, an Croydon has 40 of these beds, 25 for men and 15 f women. During the year about 10 per cent. 3874 working-class houses inspected were found t contain one or more overcrowded rooms. In 117 cas it was found possible to abate the overcrowding witho producing overcrowding elsewhere. The municip lodging-house contains 101 cubicle beds and th average number of lodgers was 100 men per nigh The charge is 9*d.* per night and 5*s.* per week. Th receipts for the last three years were £1182, £134 and £1338, and the expenditure £1350, £1485, an £1639.

The following samples of graded milk were examine during the year: Certified, 7; Grade A (T.T.), 5 and Grade A, 9. All of them conformed with th requirements. Out of 247 samples of milk examine for tubercle, two gave a positive result. The chi items of note in the school report are the growth the dental scheme and of the scheme for dealing wi crippling conditions. In April the second whole-tim dental surgeon replaced a part-time dentist. 9393 children examined, 68 per cent. had defecti teeth as against 75 per cent. in 1925 and 82 per cen in 1924. The children dealt with for crippling co ditions numbered 244, 72 from the maternity an child welfare, 132 from the school medical, and 40 fro the tuberculosis departments. The orthopædic clin is conducted by an orthopædic surgeon at the Croyd General Hospital, where in-patients requiring sho periods of treatment are admitted. Those needi prolonged treatment are sent to Pyrford Orthopæd Hospital. During 1926, 11 children were admitt to the Croydon Hospital and nine were sent Pyrford. Dr. Newsholme again draws attention the need for an open-air school for anæmic debilitat children, numbering over 250, who cannot deri proper benefit from education in the ordina elementary schools.

Coventry.

Dr. E. H. Snell reports that an automatic pollution recorder has been in use since Novemb The scheme for a public abattoir has gone a st farther, the Council having approved of the erecti of an abattoir at Whitley at an estimated cost £21,757. The site adjoins the railway. Its area five and a half acres. Two acres is to be utilised once, the remainder being available for extensi The scheme is intended in the first instance to provi accommodation for butchers who have none. T slaughter-houses in existence at the end of 19 numbered 46, 11 registered and 35 licensed. The is already a dead meat market in Barrack-squa The meteorological report shows that the rainf was 27·66 inches and the hours of bright sunshine 11 A chart indicates that the whole of the recent decli in infant mortality has occurred between the ag of 4 weeks and 12 months, and that the neona mortality has been practically stationary since 19 In the more recently developed portions of the c separate sewers have been installed for foul a surface water. An important scheme for laying furth

storm-water relief sewers has now been approved by the Council.

It was only possible to deal adequately with very serious cases of overcrowding owing to the shortage of houses. Details are given of eight such cases, of which we give the last: "The house contained one living-room and one bedroom. The bedroom, containing 1118 cubic feet, was occupied by a man, wife, four daughters aged 15, 7, 3, and 1 year, and four sons aged 14, 10, 9, and 5 years respectively."

The milk-supply in 1926 averaged 4700 gallons per day and exceeded demand, nearly half the total quantity is pasteurised and sold in bottles. One of 2 specimens of milk from 39 farms was found to contain tubercle bacilli, and as a result two cows from an outside farm were found to be tuberculous and were slaughtered. A table, which has been compiled since the Council first provided sanatorium beds, shows the present condition of the ex-sanatorium patients. Thus, of the 956 patients treated during the ten years 1909–1918, 240 were known to be "remaining well" at the end of 1926. The tuberculosis officer, Dr. J. McG. Williams, reports that, from the summer of 1925 to the end of 1926, 50 patients were treated with sanocrysin at the Memorial Sanatorium, and that 12 had completed their treatment. In five cases the treatment was unsuitable and discontinued, 22 patients improved, six showed no improvement, three became worse, and six died. If the improvement in the 12 patients is lasting, says Dr. Williams, it may be concluded that sanocrysin is beneficial in certain cases, but years must elapse before the final results can be judged with accuracy.

The percentage of patients who keep up their attendance at the venereal diseases clinic has improved from 82·6 to 86·7 per cent. The infant welfare centres are being used both for the instruction of school-girls between the ages of 13 and 14 and for pupil-midwives; 41 school-girls attended during 1926 and eight pupil-midwives. An antenatal clinic is conducted by a gynæcologist, Dr. S. A. Ballantyne, at one of the welfare centres. Of the 251 cases seen 233 were booked for maternity hospitals, eight were sent by midwives, eight came of their own accord, and two were not pregnant. The total births in Coventry during the year numbered 2116.

Bournemouth.

This report is issued under the name of the late C. A. D. Edwards, the medical officer of health. The public analyst, Mr. R. A. Cripps, points out that the three samples of cream sent to him contained only 25 per cent. of fat, "or rather less than half that usually found in cream." He thinks that the Ministry should issue an order defining cream as containing from 40 to 70 per cent. of fat, and compelling the vendors to state upon the label the approximate proportion of contained fat. Of the 18 samples of sausages examined six contained sulphur dioxide and four boric acid. Since Jan. 1st, 1927, the use of boric acid has been prohibited.

Great Yarmouth.

Dr. A. N. Stevens reports that there is no shortage of midwives and that it is customary for medical practitioners to be engaged for confinements. Over two-thirds of the births during 1926 were attended by medical men. Only 75 per cent. of the total live births were notified to the medical officer of health. Of the infants visited during the year, 82 per cent. were found to be breast-fed during the first month, 61 per cent. during the fourth month, 59 per cent. during the eighth month, and 34 per cent. during the twelfth month.

Scarborough.

Dr. S. Fox Linton reports that 139 new houses were built during 1926, as compared with 332 in 1925. The houses built with State assistance numbered 93, as compared with 296. Housing conditions are bad in part of the town. The area represented as unhealthy by the medical officer of health in January, 1924, has not yet been dealt with. The corporation subsidise one bed at a nursing home for maternity cases, the cost being a retaining fee of £5 and £4 4*s*. per week when the bed is occupied. Twenty patients used the bed for a total of 41 weeks. The question of adopting the model by-laws for slaughter-houses is being discussed. Dr. Linton's report in favour of the use of the humane killer shows that there is little or no objection to the use of a humane killer for cattle and sheep, and that the objection in the case of pigs appears to be negligible. There are slaughtering establishments in Sweden which specialise in exporting, and from which bacon is exported to England, where humane killing is obligatory. Among adverse sanitary circumstances Dr. Linton reports the existence of about 920 houses with privies, and an unknown number of privies attached to houses with water-closets. Four-fifths of the refuse is disposed of by tipping and a tip close to the new corporation housing estate has caused complaints during the year. Six samples of bread and butter were obtained at local restaurants and in three instances were found to consist of bread and margarine. Fines of £3 each were imposed. The hours of bright sunshine totalled 1412, or about 50 hours less than the annual average for 35 years.

SCHOOL MEDICAL SERVICE.

THE following is a summary of the three school reports under notice:—

Name of district.	No. on roll.	Av. elem. school attendance.	No. of routine children examined.	No. of special examinations and re-inspections.	Percentage of children found on routine examination requiring treatment.*
Nottingham .	40,838	35,547	11,551	25,704	17·4
Shrewsbury .	4,000 (approx.)	3,896	1,178	7,726	9·2
Carlisle.. ..	8,029	7,044	2,724	6,215	20·7

* Excluding uncleanliness and dental defects.

City of Nottingham.

A feature of the report by Dr. E. M. Wyche, senior medical officer (education), is an illustrated account of orthopædic work in the city. Mr. S. A. Malkin, the orthopædic surgeon, says that "not the least gratifying feature of the year's work has been the fact that some of the children who last year attended for orthopædic treatment have this year left school fully able to take their place in the business and industrial life of the city . . . . But for the committee's orthopædic scheme, many of their disabilities, now happily removed, would necessarily have been neglected until complete breakdown and much needless suffering had occurred. No less than 63 children have been discharged cured—a permanent gain to the community as well as to the individual concerned." This useful work will shortly be facilitated by the establishment of a country hospital school. The city can be justly proud of its open-air schools. The combined accommodation is for some 385 children, which seems generous in comparison with that of many other towns, but there is need for substantial increase in the south-east part of the city. Dr. Wyche gives in a few lines a summary of the history of school health work in Nottingham since 1907, each year or two showing some development. Even now, he says, not less than one-fifth of the school population is found defective from one cause or another, many of which should not be allowed to continue. It is often forgotten, moreover, as he points out, that these figures give a somewhat optimistic view, since they take no note of children who are at home ill, or in special schools and institutions. On the other hand, an apparent rise in incidence of defect may be due to exceptionally thorough investigation which will bear fruit later.

The consultant aural surgeon, Mr. H. Bell Tawse, welcomes the opening of a new department in a clinic,

and remarks that "now the medical officers see their own cases up to and through the stage of operative treatment and subsequently can follow their progress up to complete recovery. The progressive widening of the scope of the medical officers' duties, and the improvement of the conditions of service, are matters of infinite importance; it is in this way only that the committee can obtain the best and keenest types of recruits to fill vacancies in their medical staff. Entrusted to capable hands, the school medical service should become our most effective instrument for the prevention of needless disease and disability.

Shrewsbury.

Dr. A. D. Symons is to be congratulated on his report for 1926. The health of the children of Shrewsbury may be considered very satisfactory. The percentage of children found to require treatment on routine medical inspection was very low (9·2 per cent.). He attributes this to four possible causes: (1) environment (absence of large quantities of industrial smoke, open spaces and playing fields, the equable climate); (2) absence of poverty or unemployment as found in some industrial towns; (3) the cumulative effect of child welfare work in the borough; and (4) the provision made by the education committee for the health and welfare of the children. He gives an interesting hypothetical case illustrating the coördination between the various agencies responsible for the health and welfare of children from birth to adolescence. With regard to vaccination, it is pointed out that of 2854 children, admitted to school during the last seven years, 1199, or 42 per cent., were unvaccinated; in other words, only just over half of the present elementary school population in Shrewsbury is protected—and even then only partially protected—against small-pox. Dr. Symons discusses the difficulties in administrative control of infectious outbreaks in the school. A pamphlet is reproduced giving directions for the treatment of impetigo in the home.

Extracts from the replies of the head teachers on the subject of cod-liver oil and malt in the schools are illuminating. Dr. Symons states that the cost of supplying the cod-liver oil to 179 children was £30. Eighty-nine per cent. of the children much increased in weight. The treatment he regards as preventive, and the small amount of malt and oil may just turn the balance in many cases by warding off tuberculosis or other infections. He goes on to say that it is more economical to spend £30 a year on 179 children in this way than to wait until they become casualties. It would cost the same sum of money to maintain one child as a tuberculous cripple at the orthopædic hospital for 12 weeks only.

There are no special schools for mentally defective children in the borough, and it has to be borne in mind that the state is difficult to detect. Each individual case has to be examined in a thorough manner, mentally and physically, and this examination cannot be done properly in less than one hour. This responsibility must, however, be faced, for experience has shown that it is necessary at the earliest possible moment to separate the three classes: (1) those who can be taught in an elementary school; (2) those who can be taught only in a special school; (3) those unfit for any school.

City of Carlisle.

Dr. Joseph Beard, M.O.H. and S.M.O., notes that there were 95 less routine inspections than in the previous year, the decrease being in the later age-groups. The number of routine inspections was larger among entrants, showing the continuing effect of the increase in the annual birth-rate which followed demobilisation. The percentage of defects is considerably lower, 6·37 less than in 1925 and 12·7 less than in 1924. The decrease is most marked in non-tuberculous lung disease, in tuberculous conditions of all sorts, and in anæmia and malnutrition—conditions that are specially important for the outlook in later life. Cleanliness is also more usual, t apparent paradox of a greater number of exclusio for verminous conditions is explained by the great number of inspections and especially the surpri visits paid by nurses for this purpose. The rearrang ment of the surprise visits is expected to lead to marked improvement in cleanliness in the futu Dr. Beard gives a list of the schools with the numb of unclean children in each; such lists may have good influence by stimulating a competitive effo to be the cleanest school in the town. Dental work satisfactorily carried on, the fillings of permane teeth being three and a half times as many as t extractions, and as Dr. Beard says, that experien shows that any conservative work that has been do proves to be of a lasting nature, and that the gene cleanliness of the teeth of all groups is well maintaine It is certainly to be regretted that the percentage refusals of dental treatment (37·2) is so high, becau the children in this group are at an age when t six-year molars can be satisfactorily treated; is surprising since the number of parents attendi medical inspections is good (54·17) and increasing.

There are as yet no special schools in Carlisle, n any adequate orthopædic scheme, though for delica children there are the Newtown delicate classes a 66 children were sent to the Sillath Convalesce Institution through the medium of the Council Social Service, which also provides a voluntary clin for the treatment of cripples. It is evident that the is need for a properly equipped open-air school, complete orthopædic scheme, and schools for t physically and mentally defective.

INFECTIOUS DISEASE IN ENGLAND AN WALES DURING THE WEEK ENDED AUGUST 27TH.

Notifications.—The following cases of infectio disease were notified during the week: Small-po 166 (last week 103); scarlet fever, 1354; diphtheri 705; enteric fever, 103; pneumonia, 384; puerper fever, 41; puerperal pyrexia, 115; cerebro-spin fever, 7; acute poliomyelitis, 29; acute poli encephalitis, 4; encephalitis lethargica, 23; co tinued fever, 2; dysentery, 7; and ophthalm neonatorum, 115. No case of cholera, plague, typhus fever was notified during the week.

Deaths.—In the aggregate of great towns, includi London, there were no deaths from small-pox enteric fever, 16 (1) from measles, 4 (2) from scarl fever, 8 (3) from whooping-cough, 15 (2) from dip theria, 72 (8) from diarrhœa and enteritis und 2 years of age, and 20 (5) from influenza. The figur in parentheses are those for London itself.

THE Lister Centenary Exhibition at the Wellcon Historical Medical Museum, 54A, Wigmore-street, will closed on Oct. 1st. Since its inception in April the exhi tion has been inspected by a large number of visitors fr all parts of the world.

A CONFERENCE ON LIBRARIES.—Some 200 organis tions will be represented at the Fourth Conference of t Association of Special Libraries and Information Bureau which is to meet at Trinity College, Cambridge, fro Sept. 23rd–26th. After a reception by Sir J. J. Thoms (Master of Trinity College), Sir Geoffrey Butler, M.P., w deliver the presidential address. Among others who w read papers are Sir Henry Lyons, Mr. A. E. Overton, a Sir Richard Gregory. The subjects to be discussed inclu the recent report of the Public Libraries Committe coöperation between libraries, and book selection in scien and technology. Sectional meetings will be held on inform tion and statistics in commerce and industry, on pate classification, and on information bureaux. The conferen is open to all interested, and particulars may be had fro the secretary of the Association at 38, Bloomsbury-squa London, W.C. As we have already announced, t Association is publishing in the autumn a directory of sourc of specialised information, edited by Mr. G. F. Barwick, la Keeper of Printed Books at the British Museum.

Correspondence.

"Audi alteram partem."

EXAMINERS AND EXAMINEES.

To the Editor of THE LANCET.

SIR,—In connexion with the article by Dr. Alan oncrieff in the Modern Technique in Treatment ries on Diseases Associated with Examinations, hich appeared in your Students' Number ugust 27th), there is a proposal which I brought fore the College of Physicians of Edinburgh over years ago which would, I think, if adopted, prevent e occurrence of such disorders, at any rate to a very nsiderable extent. Let me briefly explain my eaning.

At a professional examination the factor which believe acts most powerfully in inducing mental rturbation in the good student is what may be med "the unknown." The natural remedy would erefore be to conduct the examinations, at any rate e oral and clinical parts of them, practically "in e open." In this way the prospective candidate, ving had frequent opportunities of witnessing the aminations and of familiarising himself with their quirements, character and standard, would know ll in his own mind when he was fit to pass and would, the proper time, appear before his examiners with ich less diffidence and anxiety.

Of course, in the adoption of such publicity some xra thought, consideration, and care would have be exercised by the medical authorities as regards e practical arrangements and carrying out of the aminations. But, as we all must recognise, publicity a thing that is always worth obtaining from the dico-sociological point of view, and one must not get that publicity as regards professional examina-ns other than medical is no new thing. Moreover, ointed out at the time that in a large medical ool where there are many students to be taught l many candidates to be examined, publicity as ards examinations would present another advan-e. This was that the hours and days spent in the mining of students instead of being, as at present, oss to the teaching work, would become to it a st helpful and valuable adjunct.

I am, Sir, yours faithfully,

dinburgh, Sept. 1st, 1927. ALEX. JAMES, M.D.

To the Editor of THE LANCET.

IR,—Dr. Alan Moncrieff's judicious article in THE CET for August 27th on the treatment of disorders ciated with examinations must assuredly have kened memories, many unhappy, in the minds very medical man and woman reading it. He deals fly with the examinee. May I, in a few lines, with the examiner? Though I was never oughed" in a medical examination, and though e than a score of years have passed since I ified, my impressions of certain incidents at the geons' Hall in London and at Cambridge remain leasantly vivid. An examiner is sometimes a leman; who could have any but kindly memories hat model of courtesy and consideration, Sir ord Allbutt? But could he be called a typical miner? One of the worst types is the youngster, a short and brilliant career, intolerant of less d mortals. Many other types, all objectionable ne way or another, could be described. We ex-examinees know them so well that I need describe them. How can they be eliminated heir malice assuaged? What consideration is resent paid by those who appoint examiners to tesy, patience, and a sense of justice as necessary ifications in an examiner? What may be a less gibe at other times may be a cruel taunt the object thereof is passing through a real s in his life, nerves stretched to breaking point by months of over-work. About two generations ago a medical examiner had "savaged" a batch of examinees so effectively that a deputation waited on the university authorities and secured his dismissal. But for one such case, how many are there in which the cavilling, jeering examiner is free to continue to cavil and jeer? I have already indicated the possibility of one remedy. Another is to foster an opinion in favour of courtesy and fairness in examiners. It is with this object that I am now trespassing on your space. Yet another is to make every *viva voce* examination public, to allow anyone who wishes it to be present. A few years ago I witnessed a public *viva voce* at the University in Oslo and was impressed by its fairness. There may be yet other remedies; I hope so, for I am not sure that I have shown how to bell effectively that most catty of cats, a bad-tempered examiner.

I am, Sir, yours faithfully,

CLAUDE LILLINGSTON, M.D. Cantab.

League of Red Cross Societies, Paris, Sept. 2nd, 1927.

ANTISPECIFIC CYTOLYSINS AND MALIGNANT DISEASE: A HYPOTHESIS.

To the Editor of THE LANCET.

SIR,—Some two years ago [1] I argued as a probable hypothesis that the body in its reaction against malignant disease produces cytolysins which are nearly or quite as toxic to itself as to the tumour, and that malignancy is due not to the tumour but to these cytolysins alone. The weakest point in the argument appeared to be the doubtful existence of these antispecific cytolysins, for which, so far as I then knew, no direct evidence had ever been obtained. That much evidence now exists seems clear from Miss Kohn-Speyer's paper in THE LANCET of August 20th, and I would urge again that this hypothesis of malignant disease should at least be considered. It appears to explain very simply all the peculiar phenomena of malignancy, the fretting of tissues at the tumour's edge, the metastases, the cachexia; if this be so, why should we involve ourselves in needless difficulties by supposing a further virus in the tumour itself? If this hypothesis can be accepted it will greatly simplify our view of malignant disease, and may have an important bearing on its treatment. For if malignancy is not in the tumour, but wholly in the body's reaction to it, then evidently any tumour will cease to be malignant, if the body can be induced to ignore it.

I am, Sir, yours faithfully,

Plymouth, Sept. 1st, 1927. C. R. CROWTHER, M.D.

THE TRIAD OF SALERNO.

To the Editor of THE LANCET.

SIR,—Sir Thomas Horder, in his MacAlister lecture on Diet and Dietists, reported in THE LANCET of July 16th (p. 103), alluded to "the old adage, ascribed to Swift, which states that the three best doctors are 'Dr. Diet, Dr. Quiet, and Dr. Merry-Man.'" J. J. Walsh, in his booklet on "Medieval Medicine" (1920, p. 55, n.), states that the opening lines of the 1607 edition of the English translation of the *Regimen sanitatis salernitanum* "deserves to be noted because they are the origin of an expression that has been frequently quoted since," going on to italicise the following couplet:—

Use three physitians still—first Dr. Quiet,
Next Dr. Merry-man, and third Dr. Dyet,

which is apparently a translation of an original

Si tibi deficiant medici, medici tibi fiant
Haec tria, mens hilaris, requies, moderata diæta.

This drives one back to the "offscourings of the Bodleian" that are said to have formed the substance, the flesh clothing the anatomical structure, of Robert

[1] Brit. Med. Jour., Jan. 23rd, 1926.

Burton's "Anatomy of Melancholy," which originally appeared in 1621. Sure enough it is to be found in Part II. (2.6.4.):—

"The merrier heart, the longer life; *a merry heart is the life of the flesh*, Prov. 14. 30. *Gladness prolongs his days*, Ecclus. 30. 22. and this is one of the three *Salernitan* Doctors, Dr *Merryman*, Dr *Diet*, Dr *Quiet*, which cures all diseases—*Mens hilaris, requies, moderata dieta.*"

These three doctors, however, with Englished names, are to be found earlier than 1607; whether the idea from which they took rise is traceable to Salerno (as is probably the case) or not. In Dr. J. C. Bucknill's useful, but somewhat superficial booklet on the "Medical Knowledge of Shakespeare" (1860, pp. 26–27), there is a quotation from Bullein's "New Boke of Phisicke" of 1559, in the form of what Bucknill calls "the following good story," in which, to our surprise, the triad is to be found:—

"Once I fel into a great sicknes, and hitherto I am skant recovered of it, the surfite was so great; but counsail was geuen me, that I should not stay myselfe upon the opinion of any one Physition, but rather upon three: then said I: to retain three at once, requireth great charge, for those men to whome lives be committed ought liberal rewardes to be geuen. Then sayde my frend, they are good gentlemen, and no great takers. What be theyr names, said I: He answered saying: The fyrste was called Doctor Diet, the second, Doctor Quiet, the third, Doctor Merryman."

A new turn is given to the phraseology of the saying by Longfellow (1807–82) in his "Poetic Aphorisms," which were based on the seventeenth century *Sinngedichte* of Friedrich von Logau:—

"Joy and Temperance and Repose
Slam the door on the doctor's nose."

This is equally Salernitan with the others, although in this, its latest dress, it will be seen that *tibi deficiant medici* in a way that was not exactly intended by the compiler of the *Regimen sanitatis* of Salerno.

I am, Sir, yours faithfully,

Manchester, August 23rd, 1927. W. J. RUTHERFURD.

TEACHING OF SWIMMING.

To the Editor of THE LANCET.

SIR,—I have been in communication with the local education authority of Wandsworth concerning this subject, and I think it would be advisable to comment on the subject before the summer passes and interest in swimming is diminished.

Fourteen years ago the Wandsworth Education Committee taught children of both sexes under 7 years of age swimming. The teaching commenced in the month of May; the baths were emptied and cleaned, and then filled with tepid water; the girls and boys went on alternate days, three times a week each. The girls went in batches of 34 at a time; they were taught to swim on their faces, on their backs, and also the American side stroke. So all that is asked now is that the Wandsworth education authority would do now what they did 14 years ago. They do not do so; the L.C.C. have sought the assistance of the London Schools Swimming Association, and, acting on their advice, they refuse to consider the teaching of children under 7 swimming, because they feel sure that the Minister of Education would prohibit it. But they have not consulted him in any way; he has had no opportunity of expressing an opinion. There are three sets of people who ought to have their say in the teaching of swimming to these young children. First, the parents, who should be consulted as to whether they wish their children to be taught at so young an age, or whether they wish it to be postponed till they are 11 years of age or more (vide THE LANCET, July 17th, 1926, p. 160); secondly, the school education authority, who take upon themselves to decide the matter for everybody; and thirdly, the *health* authorities, who are ignored and they at least ought to be considered by THE LANCET—they probably do not know what is going on.

I am, Sir, yours faithfully,

WALTER EDMUNDS.

Carlton-road, Putney, S.W., Sept. 2nd, 1927.

ASTHMA AND ARTHRITIS IN ALTERNATIO

To the Editor of THE LANCET.

SIR,—I agree with Dr. Stone that it is not altogetl unexpected that asthma should disappear during attack of arthritis, but it is, I think, somewl surprising that the patient should be free from ac arthritis during an asthmatic phase. The interest point about the case I quoted, and also about Long's case, was that the patient never had b complaints together, and was never free from eitl one or the other. Incidentally, her asthma did disappear during an attack of influenza.

I am, Sir, yours faithfully,

Dublin, Sept. 2nd, 1927. SYLVIA B. WIGODER, M.D

The Services.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified: Surg. Capt. C Baxter to *President*, for three months' post-graduate cou Surg. Comdrs. W. C. Carson to *Vivid*, for R.N. Barrac H. H. Babington to *Repulse*, and J. S. Austin to *Mala* for R.N. Hospl., Bermuda. Surg. Lt.-Comdrs. A. G. Bee *Maidstone*, amended orders; R. P. Ninnis, to *Vivid*, R.N. Barracks cancelled; and C. N. Ratcliffe to *Pembi* for R.N. Hospl., Chatham, temp., supy., amended ord Surg. Lts. A. de B. Joyce to *Maidstone* and to *Vivid*, R.M. Infirmary, Plymouth, amended orders; G. W. Ga to *Comus*, temp.

Surg. Lt.-Comdr. A. C. Anderson to rank of Surg. Com Lt. (retd.) B. T. Brewster to rank of Lt.-Comdr. (ret

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Sub-Lt. A. T. G. Thomas to be Surg. Lt.

Proby. Surg. Sub-Lt. D. C. Livingstone to *Furious*, 28 days' training.

The Medical Department of the Admiralty announce t Surgeon Lieut.-Commander Allan Watt McRorie, M.B., R. has been awarded Sir Gilbert Blane's Gold Medal, he hav obtained the highest aggregate marks at the examinati held in 1927 for promotion to the rank of Surg Commander.

ROYAL ARMY MEDICAL CORPS.

Capt. H. N. Stafford to be Maj.

The undermentioned Capts. to be Majs.: J. F. Bourke S. J. L. Lindeman.

The undermentioned are secd. for duty with the Su Def. Force: Capt. R. J. Rosie, Capt. E. G. Dalziel, Lt. J. D. Corner.

Surg. Capt. Philip Graeme Bentlif, from the R. Jersey M L.I., to be Lt.-on prob., and relinquishes the rank of Surg. Ca

Lt. P. G. Bentlif is secd. under the provisions of Art 2 Royal Warrant for Pay and Promotion, 1926.

Temp. Lt. W. D. Dyson relinquishes his commn.

ARMY RESERVE OF OFFICERS.

2nd Lt. W. H. Scriven, from Res of Off., R.A., to be

ROYAL AIR FORCE.

Flying Officer (Dental) A. P. McClare to Marine Aircr Experimental Establishment, Felixstowe.

J. McCarren is granted a short service commission in rank of Flying Officer for three years on the active list

INDIAN MEDICAL SERVICE.

Lt.-Col. C. C. Murison to be Col.

Capt. Sorab Curshedji Contractor to be Maj.

T. Capt. Baldeo Singh Gill relinquishes his commn.

DEATHS IN THE SERVICES.

Surgeon Lieut.-Commander John Stephen McGrath, wh death occurred on June 29th, was born in 1893 at Ross de Santa Fé, Argentine Republic. He went to Ireland 10 years of age and entered Rockwell College, afterwa taking up medical studies at University College, Cork. entered the Navy as a surgeon probationer in June, 19 and served in the North Sea until 1917, when he gradua M.B., B.Ch., in the National University of Ireland. Dur the latter part of the war he served in the Eastern Medi ranean and he was on board *Glorious* at the surrender of German fleet in November, 1918. After the war he ser on the China Station and in the Mediterranean, be invalided from the Navy with the rank of surgeon lie commander. Last winter he took a course of study at Coombe Hospital, Dublin, but he was in poor health and a severe attack of influenza in the spring. He died at Glasne Dublin, at the age of 34, leaving a widow and a daughte

Obituary.

WILLIAM JOSEPH TYSON, M.D. DURH., F.R.C.P. LOND., F.R.C.S. ENG.

Folkestone loses a distinguished citizen by the eath of Dr. W. J. Tyson, which occurred on Sept. 5th. r. Tyson was notable both as medical practitioner ıd as man of affairs, and during the latter part of his fe devoted much time to public work as chairman of ıe Royal Victoria Hospital and in other capacities. Born at Folkestone in 1851, he was the son of Dr. 'illiam Taylor Tyson, and was educated at Queen's ollege, Taunton. He qualified in 1874 from Guy's ospital, where he became house surgeon and obstetric sident. Two years later he took the Fellowship the Royal College of Surgeons of England and t up in practice at Folkestone. In 1881 he graduated doctor of medicine in the University of Durham ıd in 1889 became a Member of the Royal College Physicians of London. At this time he was acting medical officer to the Folkestone Hospital and was riting on a variety of subjects, reading numerous ıpers before the Clinical and Pathological Societies London, in whose *Proceedings* they may be found. the course of the next few years these papers tracted attention to his talents, and in 1901, during s third term of office as President of the Folkestone edical Society, Dr. Tyson was elected a Fellow of the oyal College of Physicians. Throughout his pro- ssional life he continued his contributions to medical urnals and they revealed an alert and observant ind. He also wrote two small books based on edical notes from his own practice. Dr. Tyson's rly connexion with the Folkestone Hospital was ntinued as physician and he resigned this office ly recently after nearly 50 years of constant service. e became chairman of the institution on the death Sir Stephen Penfold. Some 20 years ago he was pointed a justice of the peace for Kent and at the ne of his death was chairman of the Elham Division unty Magistrates. For many years, also, he presented Christchurch, Folkestone, in the Church ational Assembly, where his clear views and easy eech were much appreciated. During the war he ted as examiner and lecturer on Government rvice.

Dr. Tyson married the daughter of Mr. J. H. du oulay, of Sandgate. His widow survives him with ree daughters.

ARTHUR PERCY ALLAN, M.D. LOND.

Dr. Percy Allan, who died at his home at South oydon on Sept. 2nd, was for 25 years one of the edical representatives on the standing committee convocation of the University of London, and the same period was medical secretary of the niversity of London Graduates' Association. He s born at Chislehurst in 1868, the son of Mr. John lan, and was educated privately and at Birkbeck llege. Graduating as M.B. Lond. in 1894, he came clinical assistant, and later house physician, Guy's Hospital. After finishing his house appoint- nts he settled down to make a practice in Croydon, d succeeded in doing so under considerable diffi- ties. "He was an admirable practitioner and a nny fighter," writes Dr. Graham Little, "and those o knew the medical school of Guy's in the early ieties will hear of his death with a very especial ng of sorrow. Throughout his life he retained the vish freshness and ardour—and the engaging lisp— ich endeared him to his fellow students." Dr. an was honorary surgeon to the St. John mbulance Association, and during the late war good service as medical officer in charge of one of auxiliary military hospitals, receiving the Médaille Roi Albert. He wrote on many medical subjects, ides having wide interests outside his profession. was a profound student of Rabelais and had devoted much time to mythology and symbolism. A great deal of his leisure, however, was given to the University of London and he took an active part in the elections to the Senate, possessing a real flair for electioneering.

Dr. Allan married the daughter of Mr. Richard Clark, and she survives him.

WILLIAM THOMAS EVANS, M.B., C.M. EDIN.

Dr. W. T. Evans, who died on Sept. 3rd at Bromley, Kent, was the son of the late Mr. Charles Evans, F.R.C.S., and was born at Bakewell in Derbyshire in 1853. He was educated at Derby School and in 1870 proceeded to the University of Edinburgh, where he graduated in medicine five years later. After holding the post of resident house surgeon at the Edinburgh Royal Infirmary he settled in practice in West London and took up a number of public appointments, being medical officer of the West District, Paddington, and of the St. John's Training School for Girls, Westbourne Park. On retirement from practice in 1920 he went to live at Bickley in Kent. His death, which followed a fortnight's illness, occurred from heart failure. Dr. Evans married a daughter of the late Mr. Thomas Hughes, and his widow survives him with three children, one of whom is Major D. G. Evans, R.A.M.C.

FRANK PERCY ELLIOTT, M.B., C.M. ABERD.

AFTER some 35 years of practice at Walthamstow, Dr. F. P. Elliott died suddenly on August 30th at the age of 57. He came of an old Sussex family and was born at Jamaica, where his father and uncle were engaged in sugar-planting. Graduating in medicine at the University of Aberdeen in 1894, he accepted a locum tenency at Walthamstow and thus began his connexion with the district. He became attached to numerous institutions in the neighbourhood and notably to the Walthamstow Public Dispensary, of which he was senior medical officer. He was especially interested in infant and child welfare, and in 1915 established a child welfare centre at Walthamstow with beds for serious cases. A limited instalment was provided for the treatment of rickets by light, but the facilities then available did not fully satisfy him, and early this spring he acquired a large house and garden for the centre. The house contained a large installation for electrical and ultra-violet light treatment, and Dr. Elliott took it over only eight days before he died, expressing the hope that his medical friends would avail themselves fully of the opportunities afforded for treating their patients at the centre. Dr. C. W. Chapman, to whom we are indebted for some of these particulars, writes of his old friend as follows: "The outstanding feature of Dr. Elliott's character was the obliteration of self-interest in unstinting service to others. He typified the highest ideal of the family doctor and gentleman, and his relations with his professional colleagues were of the highest order." Dr. Elliott's hobby was his rock garden, and he had a remarkable knowledge of flowers in general.

NEW AUXILIARY HOSPITAL FOR GREENOCK.—It is proposed to build an auxiliary hospital for Greenock in the Kip Valley at a cost of £60,000. Provision is made for 38 beds and the building will be equipped with an up-to-date operating theatre.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—Dr. James Wheatley, county medical officer of health for Shropshire, has been elected President of this Society for 1927–28, and will deliver his presidential address at the house of the Society on Friday, Oct. 21st, at 5 P.M.—The annual dinner will be held at the Piccadilly Hotel, London, W., on Thursday, Nov. 17th, when the Minister of Health and the President of the Board of Education will be the principal guests.—The Neech Prize for the best paper read before a branch or group of the Society has been awarded for last session to Dr. E. H. R. Harries, medical superintendent of the Birmingham City Hospitals, for his paper on the Serum Treatment of Scarlet Fever.

MEDICAL CERTIFICATION OF INCAPACITY OF INSURED PERSONS FOR WORK.

A CIRCULAR (Memo. 307/I.C.) for the information of insurance practitioners has just been issued on behalf of the Ministry of Health for England and Wales and the Scottish Board of Health. It has been prepared with a view to assisting insurance practitioners in the discharge of their duties under the Medical Certification Rules. The first part of the memorandum consists of a discussion on the general meaning of the term "incapable of work," in the hope that a concise statement of certain main points on which there has been general agreement will be welcomed by practitioners. The statement does not purport to be a legal definition by the Ministry, but is a summary of views generally accepted by those responsible. In the first place it has not been held to be necessary for the purpose of establishing a title to sickness or disablement benefit, that the insured person should be found to be incapable of work in the sense of being completely unable to carry out the physical or mental processes which constitute "work." An insured person has been regarded as "incapable of work" through some specific disease or bodily or mental disablement when he is in such a condition that an attempt to work would be seriously prejudicial to his health. If it seems likely that he will soon be able to resume his former work, it is unreasonable to expect him to undertake other work in the meantime, and he may be properly regarded as incapable of work in the interim. But there has been some misunderstanding by practitioners as to their duties in cases where there is no reasonable prospect of the patient again being able to resume his ordinary occupation. Here a different criterion from that of fitness for that occupation must be applied, and the patient should not be certified as incapable of work unless in the practitioner's opinion he is physically unable to perform any other suitable kind of remunerative work, whether at once or after a short course of training. It is then the business of the approved society concerned to determine (subject to the member's right of appeal) for what period the payment of benefit should reasonably continue. A note as to pregnancy concludes this part of the memorandum; the State is not regarded here as necessarily rendering the insured person "incapable of work." While in some persons incapacity for work may be partly or wholly due to pregnancy, others will not be incapacitated.

The second part of the circular is more definitely concerned with the rules and regulations of medical certification. Clear and precise instructions as to the forms and dating of certificates and as to the details of procedure are set out. The proper use of first, second, and subsequent certificates are concisely explained, also the regulations governing voluntary certificates, advice as to additional benefits, exempt persons, persons receiving hospital treatment, and persons over 70 years of age. The caution given in a previous memorandum against the ante-dating or post-dating of certificates is repeated, and practitioners are asked to resist any importunity from insured patients or others in this matter. Among other points dealt with are certificates on death of patient, certificates in cases where benefit is not claimed, and certificates in respect of patients referred to the regional medical officer. It is noteworthy that the responsibility of the regional medical staff is confined to that of *advising* societies and practitioners respectively, and the practitioner is not precluded from giving certificates of incapacity to a person who has been stated by the regional medical officer to be capable of work, if the practitioner is of opinion that the patient is in fact incapable of work.

Some helpful explanation is given of the practitioner's duties in those cases where the certificate issued by him is intentionally vague because a precise statement might prejudice the health of the patient or inflict upon him unwarrantable injury. Here a special form of certificate must, in addition, be sent to the approve society and a detailed statement of the circumstanc to the regional medical officer. The difficulties of ear diagnosis are realised, but practitioners are warne that the approved societies cannot be expected accept without question certificates containing gener terms (such as "fever" or "debility") unless they fin that these terms are used by the practitioners onl when they have not yet been able to make a mo precise diagnosis. It is suggested that at least suc additional information as "debility with anæmia, "debility with high temperature," or "debility wit dyspepsia" might be given even at an early stag A final caution against laxity in certification and the custody of books of certificates concludes th memorandum.

Medical News.

WEST LONDON HOSPITAL.—At 4 P.M. on Monda Oct. 3rd, Sir Henry Simson, Dean of the hospital, will ope the winter session with a paper on Post-graduate Educatio in Obstetrics. There will be continuous instruction unt Christmas in general medicine and surgery and in all speci departments.

IRISH FREE STATE MEDICAL COUNCIL.—The Roy College of Physicians of Ireland last week nominated D T.G. Moorhead as its representative on the Free State Medic Council. Dr. Moorhead is Regius Professor of Physics Dublin University and one of the physicians to Sir Patric Dun's Hospital.

POISONING BY TINNED TOMATOES.—At an inque held at Sheffield on August 24th it was stated that a who family had fallen ill after eating tinned tomatoes, and o of the children, a boy aged 5, had died two days later a result. Post-mortem examination was said to have show that death was due to solder in the tin having been dissolve by the acid juice of the fruit.

CHELSEA CLINICAL SOCIETY.—The annual dinne will be held at the Café Royal, 68, Regent-street, W., o Tuesday, Oct. 25th, at 7.30 P.M. (Reception at 7 o'clock The following subjects will be discussed at meetings of th Society during the session: Focal Sepsis (Nov. 15th Orthopædics in General Practice (Dec. 13th), What Prescribe and Why (Feb. 21st), Modern Aspects of Dentist (March 20th), the Future of Gas Warfare (April 17th), an the Clinical Value of Biochemical Methods (May 15th All these meetings will be preceded by a dinner at th Hotel Rembrandt at 7.30 P.M., and will begin at 8.3 There will also be a clinical meeting at St. George's Hospit on Jan. 17th at 8.30 P.M.

FELLOWSHIP OF MEDICINE AND POST-GRADUAT MEDICAL ASSOCIATION.—On Sept. 19th the Westminst Hospital will start a fortnight's course in medicine, surger and the specialties. There will be lectures, demonstration and operations from 10.30 A.M. to 5.30 P.M. (fee £3 3s. On the same date the Royal National Orthopædic Hospit will start a two weeks' course consisting of lecture-demonstra tions from 11.30 A.M., operations at 9.30 A.M. or 10 A.M., an out-patient work each afternoon (fee £2 2s.). Durin October courses will be given in antenatal work at th Royal Free Hospital (limited to ten) on Fridays at 5 P.M (fee £1 1s.); in cardiology at the National Hospital fo Diseases of the Heart, from 10 A.M. to 4 P.M. (limited to 2 fee £7 7s.); in diseases of children at the Victoria Hospit and Paddington Green Hospital, all day (fee £3 3s.); i diseases of the throat, nose and ear at the Centra London Throat, Nose and Ear Hospital, all day. This cours is divided into two parts, clinical and operative, which ma be taken separately or together, the numbers for th operative class being limited (fee £5 5s. for clinical cours and £7 7s. for operative class). There will also be courses i electrotherapy at the Royal Free Hospital on Wednesday at 5.15 P.M. (fee £1 1s.); in gynæcology at the Chelsea Hospit for Women, mornings and/or afternoons (fee £5 5s.); i tropical medicine at the London School of Hygiene an Tropical Medicine, on Tuesdays and Thursdays, at 2 P.M (fee £2 2s.), and in neurology at the National Hospita Queen-square, for two months. A series of Fellowshi lectures entitled Practical Hints in Medicine, Surgery, an the Allied Specialties will be opened by Sir Humphr Rolleston on Monday, Oct. 17th, at 5 P.M. There will als be series of weekly clinical demonstrations in medicin surgery, and ophthalmology open to members of the medic profession without fee. Copies of all syllabuses and of th general course programme are obtainable from the Secretar of the Fellowship at 1, Wimpole-street, London, W. 1.

Appointments.

ORY, NORMAN A., F.R.C.S., has been appointed Ear, Nose, and Throat Surgeon, Royal Northern Hospital, London.

urgeons under the Factory and Workshop Acts: CHEESE, F. W., for the Ludlow District, Salop; HASKINS, N. H. H., for the Deal District, Kent; MARTIN, E. W. D., for the Tunbridge Wells District, Kent; OAKEY, T. J., for the Darlaston District, Stafford; ROBINSON, F. W., for the Leiston District, Suffolk; ROGER, H., for the Towcester District, Northampton; SWAINE, R. O., for the Bognor District, Sussex; TAYLOR, W. A., for the Aylesbury District, Buckingham; THOMAS, W. S. R., for the Warlingham District, Surrey.

Vacancies.

For further information refer to the advertisement columns.

hton-under-Lyne District Infirmary.—H.S. At rate of £150.
th, Ministry of Pensions Hospital.—Jun. M.O. At rate of £300.
rmingham City.—M.O.H. £1800.
rmingham and Midland Eye Hospital.—Jun. H.S. £110.
istol Education Committee.—Asst. Sch. M.O. £600.
mbridge, Addenbrooke's Hospital.—Cas. O. and Res. Anæs. At rate of £130.
rdiff City Mental Hospital, Whitchurch, nr. Cardiff.—Sen. Asst. M.O. £550.
ntral London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—Sen. and Jun. H.S.'s. At rate of £100 and £50 respectively.
rbyshire Education Committee.—Asst. Sch. M.O. £600.
ncaster Poor-law Institution, Balby.—Res. M.O. £220.
elina Hospital for Children, Southwark, S.E.—H.P. At rate of £120.
lifax Royal Infirmary.—Third H.S. At rate of £100.
spital of St. John and St. Elizabeth, 40, Grove End-road, N.W. Res. H.P. At rate of £100.
wich, East Suffolk and Ipswich Hospital.—Two H.S.'s and one H.P. Each at rate of £100. Pathologist. £650.
ter Institute of Preventive Medicine, S.W.—Research Fellowship in Bacteriology. £500.
erpool Port Sanitary Authority.—Asst. Port. M.O. £700.
ndon Homœpathic Hospital, Great Ormond-street, W.C.—3 Res. M.O.'s. £100.
ndon Jewish Hospital, Stepney Green, E.—Hon. M.O. for Dept. for Dis. of Skin. Also Hon. Asst. S. for Dis. of Eye.
d Mayor Treloar Cripples' Hospital, Alton and Hayling Island, Hants.—Asst. Res. M.O. £300.
ccleſield, Parkside Mental Hospital.—Res. Clin. Asst. £75.
nchester, Ancoats Hospital.—H.S. At rate of £100.
nchester Babies' Hospital, Burnage-lane, Levenshulme.—Res. M.O. At rate of £125. Also Jun. Res. M.O. At rate of £50.
nchester Ear Hospital, Grosvenor-square, All Saints.—Non-Res. H.S. At rate of £150.
nchester, St. Mary's Hospital, Whitworth-street.—Two H.S.'s. Each at rate of £50.
nchester, Salford Royal Hospital.—Two H.S.'s. Each at rate of £125.
nor House Hospital, Golders Green, N.W.—H.S. At rate of £200.
M.B. Mental Hospitals Service.—Sen. Asst. M.O. £650.
ter General Hospital for South East London, Greenwich-road, S.E.—H.P. £125.
ttingham General Dispensary.—Res. Surg. £250.
o University and Dunedin Hospital, New Zealand.—Sen. Res. Surg. O. £500.
ce of Wales's General Hospital, Tottenham, N.—H.S.'s and H.P.'s. At rate of £120 and £90 respectively.
al London Ophthalmic Hospital, City-road, E.C.—Asst. S.
al National Orthopædic Hospital, 234, Great Portland-street, W.—H.S. At rate of £150.
al Northern Hospital, Holloway, N.—Anæsthetist. £10 10*s.* Also H.P. and Obstet. H.S. Each at rate of £70.
John's Hospital for Diseases of Skin, 49, Leicester-square, W.C.—Pathologist. £100.
Peter's Hospital for Stone, &c., Henrietta-street, Covent-garden, W.C.—H.S. At rate of £75.
sbury General Infirmary.—H.S. £150.
aritan Free Hospital for Women, Marylebone-road, N.W.—Anæsthetist. £30.
ield, Jessop Hospital (Firth) Auxiliary.—Res. M.O. £175.
ield Royal Hospital.—Res. Anæsthetist. At rate of £80.
hampton, County Borough Isolation Hospital.—Res. M.O. £360.
h London Hospital for Women, South Side, Clapham Common, S.W.—H.P. and three H.S.'s. Each at rate of £50.
e-on-Trent, North Staffordshire Royal Infirmary, Hartshill. H.S. to Eye, &c., Depts. £150.
sea Hospital.—H.S. £150–£200.
ford, Peace Memorial Hospital.—Res. M.O. At rate of £150.
minster Hospital Medical School.—University Readership in Pathology. £800.
ng Urban District Council.—Part-time M.O.H. £350.
erhampton and Midland Counties Eye Infirmary.—H.S. £200.

Chief Inspector of Factories announces a vacant appointment for a Certifying Factory Surgeon at Exmouth (Devonshire).

Births, Marriages, and Deaths.

BIRTHS.

ANGUS.—On August 30th, the wife of Alan Angus, M.D. Durh., Oxford-terrace, Gateshead, of a son.
DOHERTY.—On August 31st, at Welbeck-street, London, the wife of W. D. Doherty, M.A., M.Ch., F.R.C.S., of a son.
EDE.—On August 29th, at Strangeways, Calne, Wilts, the wife of Cuthbert Ede, M.D. Camb., of a son.
LITHERLAND.—On August 28th, at Milton Lodge, Wigan, to Doris Litherland, M.R.C.S. Eng., L.R.C.P. Lond. (née Knowles), the wife of Henry Litherland, L.S.A. Lond.—a son.
RAMMELL.—On August 31st, the wife of Dr. John Rammell, of St. Albans, of a daughter.
SLATER.—At Stagsden Nursing Home, Bournemouth, on the 14th August, to the wife of J. McDonald Slater, M.B., F.R.C.S. Edin., a daughter.
STEVENS.—On August 28th, at Redholme, Thame, the wife of A. Langley B. Stevens, M.B., B.Ch. Oxon., of a son.
WEBSTER.—On August 7th, at Baroda, India, the wife of Captain W. J. Webster, M.B., Ch.B. Aberd., of a daughter.

MARRIAGES.

MCCANN—PAPIER.—On Sept. 4th, at Bombay, Captain J. G. McCann, I.M.S., M.R.C.S. Eng., L.R.C.P. Lond., to Miss Gabriel Papier.
SOMMERVILLE—RILEY.—On Sept. 1st, at St. Anne's Church, Kew, Surrey, Angus Christopher Sommerville, M.R.C.S. Eng., L.R.C.P. Lond., of Otford, Kent, to Joan Riley, Kew-gardens, Surrey.
STARKEY—MCLEMAN.—On August 30th, at St. Columba's, Church of Scotland, Pont-street, S.W., Richard Scott Starkey, M.A., M.B. Camb., of Amersham, Bucks, to Barbara Alice Mary, elder daughter of the Rev. John and Mrs. McLeman, of the U.F. Manse, Methil, Fife.

DEATHS.

ACTON.—On Sept. 1st, at Wrentham, Charles James Acton, M.R.C.S., L.R.C.P. Lond., D.P.H., of Wangford, Suffolk, aged 65 years.
ADAMS.—On August 28th, at Kenninghall, Norfolk, William David Adams, M.A., M.B., C.M. Edin.
ALLAN.—On Sept. 2nd, at Crogdene, Croham-road, S. Croydon, Arthur Percy Allan, M.D., B.S. Lond., aged 59 years.
BARNES.—On Sept. 2nd, at St. Edmund's, Pontac, Jersey, Edgar George Barnes, O.B.E., M.D. Lond., L.S.A., M.R.C.S. Eng., in his 79th year.
ELLIOTT.—On August 20th, at 113, Grove-road, Walthamstow, Frank Percy Elliott, M.B., C.M. Aberd., aged 57.
GIBBES.—On August 25th, 1927, Cuthbert Chapman Gibbes, M.D., M.R.C.P. Lond., 89, Harley-street, aged 76.
MACVICKER.—On August 30th, at a nursing home, Clifton, Charles George MacVicker, M.B., B.Ch., B.A.O.R.U.I.
NEILD.—On August 29th, at Shaugh Cottage, Hartfield, near Tunbridge Wells, Edith Neild, M.B. Lond., L.R.C.P., L.R.C.S. Edin., aged 53 years.
TYSON.—On Sept. 5th, at Folkestone, William Joseph Tyson, M.D. Durh., F.R.C.P. Lond., F.R.C.S. Eng., Chairman Royal Victoria Hospital, Folkestone.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee 49 cases were considered and £776 10*s.* 8*d.* voted to 43 applicants. The following is a summary of some of the cases relieved:—

Widow, aged 34, of M.B. Glasg. who died in May last. Left with two children, boy 10, girl 9. Would willingly support herself and children, but employment is difficult to obtain owing to not being trained. Temporary grant of £3 given.

L.R.C.S. Edin., aged 72. Married, no children. Through continual ill-health applicant and his wife have had to live upon their savings which are now reduced to £81. Only income Epsom Pension £40 and old age pension £26. Rent and rates £26. Voted £40 in quarterly payments.

M.B. Glasg., aged 66. Carries on a pharmacy which was purchased with his late wife's money. On the death of his wife all her money went to her relations. The local secretary of the Fund reports that applicant's memory is so bad that he is not capable of following his profession or business. Rent £40 inclusive. Special grant of £5 and £40 in 12 monthly instalments voted.

Daughter, aged 70, of M.R.C.S. who died in 1883. Two sisters and a brother live together. One sister an annuitant of the Fund. They share expenses. Applicant asked for help towards a holiday. £5 voted.

Widow, aged 72, of M.R.C.S. Eng. who died in 1902. Brother-in-law provided for applicant and her family until 1921. Eldest a cripple from 7 years of age. Daughter aged 43 earning £2 a week. Advised to take a boarding-house, but not being able to get tenants is unable to meet expenses and asks for a grant towards rates. Voted £18.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

Notes, Comments, and Abstracts.

PATHOLOGICAL AND BACTERIOLOGICAL LABORATORY ASSISTANTS' ASSOCIATION CONFERENCE.

THE second conference of the Pathological and Bacteriological Laboratory Assistants' Association was held in the Department of Pathology, University of Cambridge, from August 22nd to 26th. In the absence of Prof. H. R. Dean (the President), Mr. W. A. Mitchell (the Vice-President) introduced the Rev. G. A. Weekes (Vice-Chancellor of Cambridge University), who declared the conference open. He said that he had heard of no other association of the kind existing in any of the other great scientific departments. The members of the Association wanted to increase scientific knowledge, to compare methods and techniques, and to give one another results of their own independent investigations. They were not intending to be merely useful and competent officials. It was significant of the high standard of tradition in the work of the scientific departments, in laboratories, that people were prepared to spend part of their holiday in a conference of this kind. He recalled the words of Pasteur, that in the realm of research luck only favoured the minds that were prepared. Discoveries were not made by people through luck alone. The "esprit préparé" could be gained not only by listening to lectures and discussions, but by the more informal and social meetings, when workers met and compared experiencee, and went away regarding everyone in that domain as a brother and comrade.

The Vice-President delivered a lecture on Cambridge, illustrated by lantern slides, and then presented the Junior Greenfield Prize and Medal to Mr. Edward B. Brain (Birmingham) for a number of colour drawings of pathological subjects.

The following lectures and papers were delivered: Standard Dietary for Rabbits and Guinea-pigs, E. Pleasance (Cambridge); The Manufacture of Small-pox Vaccine as Carried Out in the Laboratories of the Shanghai Municipal Council, A. E. P. Grimmo (Shanghai); Antagonism and Symbiosis of Bacteria, J. J. Ritchie (Edinburgh); The Development of Parasitology, Prof. G. H. Nuttall, F.R.S.; Cinema Films of Scientific Interest, G. Harper (Birmingham); Virulence Test in the Identification of *B. Diphtheriæ*, S. Denyer (London); Diversions of an Overseas Laboratory Assistant, A. Saunders (South Georgia); Rare Fæcal Organisms which Simulate Pathogens, J. McLean (London); The Preparation of Plague Vaccine, F. Leeson (Gold Coast); Laboratory Work in a Spa Hospital, S. Linfoot (Harrogate); The Biuret Reaction, E. C. Haddon (Uganda); Difficulties Encountered in the Differentiation of Paratyphosus A, B, and C, S. J. Denyer (London); The Mounting of Frail Museum Specimens on Wax Plates, H. Gooding (Manchester); Tissue Culture Technique, V. C. Northfield (Cambridge); A visit was made to the Institute of Animal Pathology and a demonstration of the method of producing antitoxin was given by A. G. Thompson. Veterinary specimens were shown by E. F. Hughes.

An exhibition of laboratory work and apparatus was on view during the conference; tissue culture exhibits showed stained preparations, a pulsating heart culture, and dark ground preparations of mitosis in living cells. The exhibits were as follows: The Cultivation of Protozoa, W. Cooper and W. J. Muggleton (London); Specimens of Malignant Pustule, F. J. Drury (Northampton); Examples of Artistic Portrayal of Medical and Surgical Conditions, D. Kidd (Liverpool); Photomicrographs, G. R. Armstrong (Cardiff); Micro-filaria found in Human Blood, C. E. Berry (London); Micro-chemical Apparatus, C. W. Ashton (Manchester); Sections of Central Nervous System, H. Gooding (Manchester); The Evolution of the Method of Mounting Specimens in Gelatine according to the late Prof. Delépine's Methods, F. Simons (Manchester); Diagrams of Morbid Histological Conditions, R. Muir (Edinburgh); Chromogenic Organisms, Photogenic Organisms, Sections illustrating Common Pathological Conditions, Bacteriophage, Living Wandering Cells, Pathological Specimens, members of the Department of Pathology, Cambridge.

The Sims Woodhead Medal was presented to Prof. Lorrain-Smith, F.R.S., the Association's first President, in recognition of his great services to the Association since its formation in 1912. Mr. Richard Muir accepted the medal on behalf of Prof. Lorrain-Smith, who was unexpectedly prevented from being present. The conference dinner was held in the dining hall of Trinity Hall on Thursday evening; 104 members and guests were present. The principal guests were the Vice-Chancellor and Prof. G. H. Nuttall.

The attendance at the conference was fully representative of this imperial organisation, including members from as far afield as the Gold Coast, South Georgia, Shanghai, as well as from all parts of the British Isles.

POST-GRADUATE STUDIES IN MANCHESTER.

THE chief feature of post-graduate work in Manchest during the coming academic year will be a new series courses given by the University and the hospitals attach to it. While the successful hospital lectures given in the la few years have been arranged chiefly for medical men in t full swing of practice, the University courses are design for those who can give up consecutive periods for intensi study. They form the foundation of a post-graduate scho which it is hoped to develop in the near future. T immediate courses are: an intensive one in medicine a surgery, Sept. 12th–30th, and in obstetrics and gynæcolo from Oct. 1st–8th. From January to March part-tir courses on tuberculosis and diseases of the ear, nose a throat will be arranged for the benefit of medical officers health, school medical officers, and those engaged in materni and child welfare work. Application should be made to t Dean of the Medical School, from whom information may obtained.

The Royal Infirmary offers an attractive programme lectures on Tuesday and Friday afternoons. In addition those given by the acting members of the honorary sta Dr. E. M. Brockbank will lecture on some points in t medical aspect of the industrial history of Lancashi Mr. Spalding, of the Deaf and Dumb Schools, will demonstra advances in the training of the deaf child, Dr. Veitch Cla will speak on immunisation against diphtheria and scar fever, Dr. W. M. Roberts will explain his recent work gastric analysis, and Dr. A. D. Macdonald will describe t physiology of shock. The Lloyd Robert Lecture for t year will be given at St. Mary's Hospital, Whitworth-stre on Nov. 1st by Dr. Hector Charles Cameron on the Ch in General Practice: A Study both of Temperament a Disease.

DIAGNOSIS IN EXCELSIS.

A CORRESPONDENT in New Zealand has sent us a copy of t "Medical Pickwick," vouching for the truth of an episo which is humorously illustrated. To the doctor's inqui of the patient as to what he had eaten for dinner, t patient said that he could not remember, but aske "Can't you tell by looking at my index-finger?"

MADD DOGS.

To the Editor of THE LANCET.

SIR,—In the interesting note on Madd Dogs in THE LANC of August 13th the writer is of opinion that the fact "poore Pompey" being "sent to be made" suggests th Pompey was an inanimate object. Is it not more probab that Pompey was a sporting dog—probably a pointer—a that he was sent to be "made" or trained in the same sen that a hunter or steeplechaser is "made"?

I am, Sir, yours faithfully,

Clevedon, August 17th, 1927. R. L. WASON.

THE CAMPAIGN AGAINST MALARIA.

A SENTENCE in our article last week (p. 522) might sugge that the League of Nations Malaria Commission have confidence in "indirect" measures against malaria. therefore wish to point out that the Commission attach ve great importance to one of them—namely, "bonification" which acts by raising the agricultural productivity of area and hence improving the economic and educatio status of the inhabitants. We should have made it cle that in all their journeys the Commission found only t regions where *antilarval* measures had been carried o on a considerable scale with definitely successful resul This finding made them lay all the more stress on indire measures which reduce the incidence of malaria witho necessarily destroying the anopheline mosquito.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUAT MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Sept. 19th, to SATURDAY, Sept. 24th.—WES MINSTER HOSPITAL, S.W. Course in Medicine, Surge and the Specialties. All day course. Fee £3 3s. ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, Gre Portland-street, W. Course in Orthopædics. All da clinical demonstrations and lectures. Fee £2 2s. QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road. Course in Diseases of Children. All day, lectur demonstrations, and operations. Fee £3 3s. ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, Ki William-street, W.C. Course in Ophthalmolog Afternoons, clinical instruction at 2 P.M. Operatio at 3 P.M. Special demonstrations at 5 P.M. Fee £4 4s. BETHLEM ROYAL HOSPITAL, St. George's-fields, S. Psychological Medicine. Tuesdays and Saturdays 11 A.M. All information from the Secretary, Fellows of Medicine, 1, Wimpole-street, W. 1.

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No. 5429 LONDON, SATURDAY, SEPTEMBER 17, 1927. CCXIII.

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An Address
ON
MENTAL UNITY AND MENTAL DISSOCIATION.*

BY WILLIAM BROWN, M.D. OXF., D.Sc.,
M.R.C.P. LOND.,
WILDE READER IN MENTAL PHILOSOPHY IN THE UNIVERSITY OF OXFORD; PSYCHOTHERAPIST TO KING'S COLLEGE HOSPITAL, LONDON; HON. CONSULTING PSYCHOLOGIST, BETHLEM ROYAL HOSPITAL, LONDON.

IT is important to realise that the problem of mental unity and dissociation is in direct relationship to the problem of unity and dissociation in the physical and physiological spheres. The point of view from which we should first approach it is that of biology. The general tendency throughout evolution seems to be towards the building up of totalities or wholes, in which each separate activity takes place in relation to the whole. The general conception is not that of a purely mechanistic scheme in which we begin with particles of matter and consider how they interact with one another to produce a more and more complex system, but one in which there is a guiding unity from the beginning. We may indeed, as metaphysicians, assume that there is a guiding unity of the entire universe. But short of such an ultimate generalisation we find that observation itself reveals this tendency towards a progressive development and multiplication of unities, in relation to which individual activities occur.

1. BIOLOGY AND PSYCHOLOGY.

In one sense, biology may be regarded as the most fundamental of the sciences, and even the simpler physical and chemical activities occur as parts of systems, which may be likened to organisms in having an environment to which their reactions are adjusted. This biological point of view needs for its completion the psychological point of view, which is not something distinct from the biological, but a continuation of it. Psychology is a completion of biology as a science, and gives further meaning to it. The unity of the organism becomes more intelligible when we think of it as a mental, and in part a conscious unity. It is a unity in plurality. Physically, the organism is a unity of parts in spatial relation to one another; psychologically, it is a system of mental tendencies in relation to one another. What we find physically is a reaction to an environment in the form of reflex action, simple or conditioned. Psychologically, response to external stimulation is the satisfaction of conation, and, at higher levels, satisfaction of desire, &c. Biologically, it is the struggle for existence, with all that this involves. Psychologically, it is a conscious striving first of all for something that the individual does not know—towards a goal which he gradually realises, gradually learns to understand as he achieves it or fails to achieve it. However helpful the biological concepts of tropisms and conditioned reflexes may be as explanatory factors, the psychological point of view throws further light upon the situation. The ultimate factor that has to be considered is something that is *purposive*—a general striving—which factor has to be assumed in order that the theory of conditioned reflexes will work.

2. NORMAL AND ABNORMAL DISSOCIATION.

Unity of mind, then, is something which develops. In its general form it is there from the beginning, but it only exists in relation to a multiplicity. There is a one-and-many relationship from the beginning. Moreover, the individual himself is, to some extent, an abstraction. He belongs to a species. He has a history, and his history is, in part, the history of the entire species. The history of the species is part of the history of organic evolution, and the history of organic evolution is part of the history of the Universe—if, indeed, we may think of the Universe itself as having a history. But within the individual experience there are partial activities that may struggle with one another just as individual members of a species may compete with one another, and in this nisus or striving towards more complete unity and greater complexity and more adequate adaptation to environment, the process of dissociation shows itself as essential and normal. Right from the beginning we must realise that dissociation is just as normal and necessary as association. The mind as it grows must be able to reject, and also must be able to segregate one activity from another. Different activities must be insulated from one another to a great extent within the organism, just as in an electrical machine there must be insulation of the wires. This insulation is what is meant by normal dissociation or disjunction. And from the pathological point of view there can be disturbance in both respects—disturbance of association and disturbance of dissociation. Experiences may become associated in such a way as to blur the clearness of vision of the individual as regards appearances and values, just as, more obviously, dissociation may go beyond its proper function and tend to destroy the unity or totality towards which normal striving is directed.

3. THE NATURE OF MENTAL ASSOCIATION.

The earlier associationist doctrine of psychology was unsatisfactory because, among other things, it failed to distinguish between the process of experiencing or the act of experiencing, and the content or object of experience; and its aim seems to have been to describe the mind as a sort of mosaic of contents of experience joined up to one another according to the laws of association by contiguity and similarity. But association is primarily between the acts of experience. These acts of experience are differentiations of the fundamental striving—that which Spinoza called the *conatus in suo esse perseverare*, "the striving to persist in one's own being." This striving has an object. There is always an object—the environmental changes which the individual has to face—and corresponding with the complexity of the environment there is a complexity developing within this general striving, forming a complex system of conations. This conation involves the two other well-known aspects of cognition or awareness, and of feeling-tone. Associationist psychology erred in failing to allow due weight to the conative side, and in attempting to range the different kinds of feeling on a level with the different kinds of objective experience. But even according to the associationist scheme, dissociation or disjunction was necessary for a complete explanation of normal mental activity. Side by side with the principles of association by contiguity and similarity, there was the principle of dissociation by varying concomitance. Only by such a principle could the important processes of discrimination, comparison and abstraction be brought within the circle of associationist doctrine. The general scheme of explanation was wrong, in that it dealt with contents of experience when it should have been dealing with acts of experience; and the general scheme of mental activity which we put in the place of this associationist scheme is that of systems of mental tendencies included within, and in subordination to, a wider system—tendencies towards knowledge and action, and involving feeling. One such system of explanation is that in terms of instinctive-emotional dispositions organised within sentiments, with the sentiments in their turn subordinated to one all-inclusive sentiment or master-interest. A sentiment is an organisation of emotional dispositions centred about the idea of some object. What are organised are not the presentations or representations, not the contents of experience

* Presidential Address to the Section of Psychology of the British Association at the Leeds Meeting. The paper was supplemented by descriptions of cases illustrating mental dissociation.

primarily, but the processes or acts of experience. The tendencies of experience, and the activity and organisation of these tendencies, bring with them an organisation of the objects; and so our memories, which are retained and which are used for the retention of past experiences, fall into systems because the acts of experience corresponding to those memories fall into systems. And from that point of view we see that the dissociations of memory—the gaps in the memory continuum, known as amnesias—find their true significance in the segregation of corresponding acts of experience.

The question then arises, if we reject the associationist scheme according to which the mind is built up of presentations and representations cohering together in systems, are we to regard the unity of the mind as an aggregation of mental activities and tendencies? Are we to put in place of our mosaic of mental contents a collection or a colony of mental tendencies? The reply is "No," because we do not have these mental tendencies separate from one another—just coming together and cohering, just as we do not have the mental contents coming together and cohering. Both subjectively and objectively, we must assume at the beginning a generalised striving and mental tendency, with a generalised objective—e.g., "the great big buzzing confusion" of which William James speaks as the world of the new-born babe—a continuum of sensation and movement on one side, and a continuum of mental striving on the other. The general mental striving which we assume at the beginning becomes gradually differentiated in relation to the needs of the organism, and the demands made upon the organism by its environment—a differentiation superimposed upon the differentiations accumulating in the history of the race, and handed on from generation to generation in the form of instinctive endowment and inherited aptitudes. The individual inherits not only separate instincts, but also the tendency towards an organisation of those instincts. He inherits the beginnings of sentiments, as well as instincts. He is already a one-and-many unity, with his mind a plurality of part-tendencies and processes, and his task in life is to carry that organisation to a higher stage. The demands made upon him by his environment bring with them movements in two directions—in the direction of greater unity and greater organisation, and also of greater complexity—a greater degree of differentiation and discrimination. Discrimination is necessary because he has not only to accept, but also to neglect or reject, and this neglecting or rejecting involves dissociation, just as acceptance involves association.

4. THEORIES OF PATHOLOGICAL DISSOCIATION.

As regards dissociation in pathological cases, the writers of the last generation thought of this in terms of associationist psychology, and in the doctrine of Prof. Pierre Janet one finds that standpoint still apparent. In his description of cases of hysteria and multiple personality, he implies a general background of explanation, according to which personality may be regarded as a synthesis of mental presentations some of which can be split off from the main mass. This view is similar to the colonial view of personality which we find in the writings of Ribot. But if we remind ourselves of the fact that experience involves an act of experiencing, we see that the situation is rather different. The power of recall is an essential aspect of conscious memory. On the other hand, unconscious memories are unconscious or latent mental activities directed towards past events. They are not passive, but involve a certain amount of mental energy. And so we pass from Pierre Janet's theory to the theory of Prof. Sigmund Freud, and we find that the dissociation which is taken as a fact in Janet's theory is explained in Freud's theory in terms of mental conflict and repression. These memories become inaccessible to the individual because the mental tendencies corresponding to them are in conflict with other tendencies of the individual and incompatible with his more fundamental interests. So they are extruded by an active process of repression—they are barred from consciousness.

That process of repression and extrusion, though pathological in these cases, need not be necessarily so. We must not look upon extrusion itself as essentially pathological. It is because we have restricted the word dissociation so much to the pathological side that we find it so incomprehensible to us. It is because we have thought too much in terms of mental unity that cases of multiple personality seem to be inexplicable. Actually the most normal mind is a multiplicity. We are all many selves. We have to face the world from many different angles. We have many different interests. Interests in the most normal mind may conflict and be incompatible with one another. And it is a condition of mental health that such conflict can be resolved by elimination or by a higher synthesis. What makes the dissociation of multiple personality pathological is that the elimination is not complete—that dissociation in normal mental activity is a successful rejection and that dissociation in a pathological case is unsuccessful—is an incomplete and therefore an unsuccessful rejection. A tendency that is pathologically repressed is, as it were, rejected and accepted at the same time—rejected by clear consciousness but still clung to by the mind.

It is misleading to look upon the problem of mental dissociation and multiple personality as something standing by itself, as if we understood mental unity and were perplexed by the appearance of multiplicity. Multiplicity is an aspect of the normal mind, just as much as unity is, and unity needs explaining just as much as multiplicity does. Those two problems must be solved together, and kept in relation to one another all through.

5. MULTIPLE PERSONALITY.

Many of the classical cases of multiple personality are fully explained along these lines. They are cases of alternating personality with reciprocal amnesia, as it is called, in which each personality is unable to recall the experiences of the other. The two individuals A and B alternate with one another. A has his own system of memories and, when he disappears and makes way for B, B has his system of memories distinct from the memories of A. We may explain this in terms of two general systems of interests which are mutually incompatible and in conflict with one another. As a rule, one part of the personality is more fundamental—i.e., more stable, than the other. But difficulty arises in cases where one personality is shut up within its own memories and experiences while the other personality has access to those memories as well as to its own. A may have his system of memories but be quite ignorant of B except from indirect evidence, whereas B not only has a special set of memories, but also has direct knowledge of A's memories, thoughts and feelings. This is a difficult problem which needs to be faced. We find an analogous, though not identical, situation in most cases of deep hypnosis. When a patient passes into the hypnotic state, he may remain fully aware of his waking consciousness, and may have free access to the memories of his waking self. But on awaking he does not, as a rule, remember his hypnotic experiences. The relation is a one-sided one. The hypnotic personality is acquainted with the waking personality, and all its memories, but the waking personality is not acquainted with the hypnotic personality. The range of the hypnotic personality is wider than the range of the waking personality. This similarity between one-sided multiple personality and the hypnotic personality is significant, when we remember that such cases have been investigated by the hypnotic method. Pierre Janet, Morton Prince and others used the hypnotic method in studying cases of multiple personality, and the criticism has been made against them that in doing so they were manufacturing personalities—that the personalities were artefacts produced by the method. Everyone

ecognises that these investigators are psychologists f exceptional ability and circumspection and honesty f purpose, thoroughly trained and alive to the ossibilities and difficulties of their method. We annot dismiss their observations as false observaons, or as misunderstandings on their part. But e must nevertheless allow for the influence of the rocess of hypnosis in the result, and as contrasted ith that earlier period of investigation—the hypnotic eriod in psycho-pathology—we find that, now that ypnosis is seldom used and has been replaced by eep analysis, cases of multiple personality are not n record. The psycho-analysts to-day seem to have o such cases to report. Moreover, if we contrast ne very large number of cases of severe nervous isturbance caused by the late war with the absence cases of multiple personality there, we may become ill more impressed by the argument that it was the ersistent use of the hypnotic method that was ainly responsible for the complexity of most of the rlier cases reported.[1]

The movement of thought is always towards stem and unity. Thought abhors hard-and-fast stinctions. Thought is baffled by cases of multiple ersonality because they are so different from the dinary cases of everyday life. If we can build bridge between one group of cases and the other, en we may feel that we are likely to have not only more satisfying but a true explanation of the uation.

We must therefore approach the question of ssociation from the normal side—as manifested in relatively normal mind. No mind is completely rmal, since no mind completely solves its problems m day to day, and it is the failure to solve mental oblems which is one of the general causes of the mptoms of psycho-neurosis and mental disease. ssociation and multiple personality are not to be ntrasted with association and mental unity. athological dissociation should be contrasted with e dissociationist processes of the normal mind. should be regarded as a failure of the normal ocess of dissociation.

AUTOGNOSIS INCREASES MENTAL INTEGRATION, HYPNOTISM MAY DIMINISH IT.

The unity of the normal mind, although it is there m the beginning, is a striving towards a more and re complete association; it constitutes an urge a greater and greater degree of completeness of stematisation and inclusiveness, but it is never ally complete. In the most normal mind there is a lling away from complete unity. There is in the tivity of this unitary mind not only a normal process disjunction or dissociation, but also a certain degree abnormal dissociation. In cases of multiple rsonality this abnormal dissociation has become so nounced as to be apparent to the whole world. ne process of deep analysis or psycho-analysis ls to reveal cases of thorough-going multiplicity, d the reason is that the process itself is a process unification. As the individual is being analysed, e failures of adaptation in his past life are cleared , so that his mind is enabled to work more and re normally. Analysis is not a good term for this ocess. It is more than analysis, it is a process of f-revelation or *autognosis*. The individual learns know himself better, and in the process of analysis ere is actual development of the mind going on. ere is a development in the direction of the normal d the unitary. Any dissociation that is encouraged the method is a normal dissociation, not an normal dissociation. It is only another expression the same truth when we say that repressions are ercome in the process of analysis, because repress-ns are pathological dissociations—dissociations at are not complete and not thorough going.

In contrast with this process of autognosis, the process of hypnotic investigation carries with it a tendency to abnormal dissociation. A person who is easily hypnotised is a person who is already, to some extent, dissociated; in hypnotising him we take a wedge, as it were, and drive it into his mind and split him up still more. No wonder the results give us an appearance of dissociation; but it would be very dangerous for us to take these results at their face value and draw inferences from them as to the structure of the normal mind, or even of the mind of the person we have been experimenting with. This general line of criticism seems valid as against such a theory as that of Prof. W. McDougall in the last chapter of his "Outline of Abnormal Psychology," in which he works out a theory of the Self as a system of monads which form a hierarchy, in which there is one dominant monad, the conscious self, and a whole number of subsidiary monads that are, in a normal mind, adequately subordinated to the chief monad and are in relation to the chief monad through telepathy[2]; but in a case of multiple personality one of these subsidiary monads may break loose and become insubordinate. This is an ingenious theory, and it may be true, but in the present state of our knowledge it would seem to be a case of explaining *obscurum per obscurius*. Telepathy may be a fact, but it is something about whose *conditions* we know next to nothing, and therefore not very suitable to take as a fundamental factor in an explanation of the working of the mind.

The mind can act at different levels on different occasions and under different circumstances. In many of the classical cases of multiple personality, the subsidiary personalities represent a regression to more juvenile forms of behaviour and of ethical valuation. This is clearly apparent in "Sally Beauchamp" of the Miss Beauchamp case, and in the "B" personality of the "B.C.A." case (Morton Prince). Such manifestations are not accurately described as "split-off" personalities. Indeed, any spatial metaphor is inappropriate. In other cases the tendency to dramatisation, natural to the human mind, may play an important part. Mutually incompatible ideas of character may be simultaneously or alternately aimed at, and identifications in early life, based on love and admiration for relatives, &c., may introduce incompatibilities which reveal themselves under circumstances of stress in later years as the grounds of pathological dissociation.

7. AB-REACTION AS A METHOD OF OVERCOMING MENTAL DISSOCIATION.

As regards the problem of the *removal* of pathological mental dissociation in hysterical patients, much was learnt from the wide range of cases dealt with during the war. While treating shell-shock cases in the field in France, I found that a large proportion of the cases showed a more or less extensive amnesia for events that had occurred immediately after the shell explosion. These patients were easily hypnotised, and under light hypnosis the lost memories could be immediately restored. But I soon discovered that if I recalled at the same time the terrifying emotion that had originally belonged to these experiences, there was a tendency for the accompanying hysterical symptoms—deafness, mutism, tremors, paralysis, contractures, &c.—to disappear spontaneously, without the necessity of giving explicit suggestions to this end. The more complete I made the working-off of the emotion, or the "ab-reaction," to use Breuer's original term, the more complete was the recovery. In cases seen by me previously in England, I had also restored lost memories by light hypnosis, but had not produced intense emotional revival and had not seen collateral symptoms disappear. But again, towards the end of the war, I was seeing more chronic cases in Scotland, and then found that amnesias of longer standing could be cleared up with accompanying ab-reaction of the

[1] Cases of extensive amnesia, fugues, &c., were numerous ring the war; but the first aim of the army doctors in the ttle areas was to remove these amnesias and reassociate the tients as quickly as possible, so that the latter might be either urned to the line or sent down to the base with the minimum delay.

[2] Unlike the monads of Leibniz, which "have no windows," and are in a relation of pre-established harmony.

emotion of fear; and that with the ab-reaction there was observable that tendency for the collateral symptoms to disappear at the same time, such as I had observed so frequently in France.

These are observed facts, and I endeavoured to show in a paper some years ago[3] that they could be explained in terms of a theory of reassociation. The amnesic patients fresh from the trenches showed a two-fold dissociation, namely (1) a dissociation of the memory of events immediately following upon the shell explosion from memories of earlier and later parts of the patient's life; and (2) a dissociation of these memories, as mere intellectual awareness, from the accompanying emotional reactions of fear—tremors, sweating, mutism, paralysis, &c.—which are of a physiological nature. The physical reaction of fear, thus dissociated from its psychical counterpart, had become relatively permanent instead of being transitory. The patient no longer felt the emotion of fear—at least, of just that fear which the shell explosion had aroused—but did show its physical manifestations in the form of hysterical symptoms. By re-arousing the whole of the lost experience in all its emotional vividness I overcame *both* dissociations. The physical manifestations became linked up with their psychical counterpart, and this in its turn was linked up with earlier and later memories of the patient's life. In this way the mind was completely resynthesised, and the physical symptoms came once more under the sway of the entire mind (the complete personality) and could disappear.

In addition to ab-reaction, I advocate the thorough thinking out of the whole psychological situation by the patient, so that he may be brought eventually to understand himself adequately. This is the process of autognosis, or self-knowledge. The patient is encouraged to obtain as objective a view of his entire mental condition as is possible.

8. Ab-reaction and Transference.

C. G. Jung[4] has explained the beneficial effects of ab-reaction in terms of "transference." By transference is meant the emotional rapport (conscious and unconscious) which springs up between patient and physician, and which enables the patient to live again, in the course of an analysis, through earlier experiences of his life in relation to the physician, and thus become freed from their harmful effects. The following case illustrates how ab-reaction can bring benefit without the factor of transference coming in. It is a case of a man of considerable education, who had for some years suffered from obsessive fear, the origin of which he could not fathom. He would wake up in the morning with this fear weighing upon his mind. After reading about the method of ab-reaction, as used in treating shell-shock patients, he thought that he would try to cure himself by a similar method. He endeavoured to recall earlier and earlier memories of his past life, using the method of concentration—to all intents and purposes producing a light degree of self-hypnosis. At length he seemed to get this memory: it was half a memory, half a waking vision. He seemed to be in a sort of native compound in India. He experienced intense heat, such heat as he never remembered experiencing in his life before, and seemed to see a black kid lying on the ground with its throat cut and blood pouring out of the wound. He felt intense terror as he went through this experience. This terror grew and grew "like a bubble." It got bigger and bigger and at last burst, and all at once the fear began to subside again and eventually disappeared, and he remained free of it afterwards. As far as one could make out—he came and told me of it afterwards; I had not treated him at the time—he had cured himself of the fear by bringing up this memory. He could not be certain that the memory was a real memory, but thought that it probably was, because he had lived in India up to the age of two, when he left for England and had not returned since. It was thus probable that it was a real experience; if not so in all its details, the central kernel of the experience was probably real, and its recall was effective in curing him. It will be noticed that he did not ab-react this experience in relation to another person. He was not in a doctor's consulting-room, telling the doctor what he could remember. He was by himself. He had not even gone to a doctor beforehand, so that it could not be described as a transference towards the doctor in the latter's absence. He had not applied to any doctor for treatment at that time. He came on to me afterwards, simply to talk the matter out still further, and to learn whether he had been working on the right lines, and how he should proceed in order to ensure that the fearsome experience should not return. An example like this is a refutation of the view that the only beneficial effect of ab-reaction is the transference. Transference is indeed often the chief factor of cure, and in many ab-reaction cases transference is an additional factor. But an example like this shows that ab-reaction by itself has therapeutic value, in contradiction to Jung's view.[5]

Ab-reaction of repressed emotion sweeps away the repression, and so frees energy which had been previously needed to hold the repressed memories apart from the rest of the mind and away from clear consciousness. This freed energy is thus put once more at the general disposal of the personality. The previous "fixation" of this repressing energy and its deviation from the common fund of energy of the personality probably explains, to some extent, the feeling of fatigue that generally accompanies a psycho-neurosis.

9. Personality and Survival of Bodily Death.

The unitary personality, as an organisation of mental activities and mental powers, is not static but dynamic, and is in process of development throughout life. Although it carries with it, as a physical correlate, a unitary working of the brain and of other parts of the body, this does not necessarily involve complete dependence upon the latter for its continued existence. The question of personal survival of bodily death is one which can be intelligibly and scientifically put, and which is in theory answerable along the lines of scientific observation and inference. The investigations carried out by the Society for Psychical Research during the past 50 years are of this nature, and the Society's results and provisional hypotheses can rightly claim a place in modern psychological science. Nevertheless, if due allowance is made for the possible working of such factors as conscious or sub-conscious fraud, telepathy between the living, and chance coincidence, the scientific evidence for personal survival of bodily death is not very strong.

For more convincing reasons (apart from the pronouncements of revealed religion) in support of this belief we still have to turn to philosophy, and in modern philosophical theories of *value* we find arguments that are far from negligible.[6]

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[3] Hypnotism, Suggestion, and Dissociation, Brit. Med. Jour., June 14th, 1919.

[4] He writes: "It must, above all, be emphasised that it is not merely the rehearsal of experience that possesses an unconditional curative effect, but the rehearsal of experience *in the presence of the physician.*" Brit. Jour. Med. Psych., vol. ii., 1921.

[5] I record this case in "Talks on Psychotherapy," University of London Press, Ltd., 1923, pp. 39–41.

[6] I have set out arguments from theory of value in my "Mind and Personality," University of London Press, Ltd., 1926, pp. 309–318.

ST. MARY'S HOSPITAL.—The annual report of St. Mary's Hospital records that the year has been disastrous from the point of view of the ordinary income. The total income was £55,824 and the excess of income over expenditure was £8567. An appeal was launched during the year for £50,000 to provide two operating theatres and 46 additional beds for accidents and sudden emergencies. Towards this extension £32,000 has so far been received. Street accidents treated at the hospital numbered 107 per day.

LUMINAL-SODIUM IN THE TREATMENT OF EPILEPSY.

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THIS paper records the results obtained over a eriod of five or six years by the administration of minal-sodium in an epileptic colony. The population f the colony consists of children and young people, nd no doubt represents a less hopeful type of the isease than would be met with in ordinary practice. t includes those who by reason of severe or frequent ts, of defective intelligence, or of abnormal behaviour re unfit for ordinary home or school life, though, roadly speaking, it does not include any who should ome under the provisions of the Mental Deficiency r Lunacy Acts. In most cases the disease has been nder treatment for some years before admission to ie colony, so that those who respond readily to romides have already been eliminated. As a general ile, no drugs are given to a patient on entering ie colony. A certain number of patients react vourably and promptly to colony life by an arrest striking diminution of their fits. This may be ie to more suitable diet, fresh air, or a more regular id simple life, but it is more likely the result of ie removal from an environment involving emotional rain or from objects or events which were linked, y association, with some unpleasant emotion. ailing such a favourable response, after a few months, ixed bromides are, as a rule, prescribed in doses creasing up to a maximum of 20 or 30 gr. a day, cording to the age of the patient. Luminal has nerally been given when other therepeutic measures ive failed, or when the number of fits has been creasing, or the patient has been obviously going wnhill. It will be clear, therefore, that the results t out below have been obtained with rather tractable and unfavourable cases of epilepsy.

The dosage of luminal-sodium has varied from 1–3 gr., ven once in the 24 hours, either in the morning evening. The great majority of the patients have id 2 gr. a day. The size of the dose has not been ken into account in recording the results of eatment. It is pretty clear that larger doses are ther, but not much, more effective than smaller; it, as tolerance so frequently sets in and the ission of the drug may be such a serious matter, ses of 3 gr. or more should not be lightly prescribed.

must be remembered that luminal-sodium is nerally said to be rather less effective than luminal elf in the treatment of epilepsy.

Effect of Luminal-sodium on the Incidence of Fits.

In this investigation only those cases were included here the fit figures, observed on the colony, for the months prior to the luminal administration are ailable, and where the duration of luminal adminis- ation was at least six months. Any alteration of sage during administration is ignored. In this and bsequent investigations, benefit or decrease of s means that the monthly average was reduced by e-third or more, harm or increase of fits means at the monthly average was increased by one-third more. The figures for 167 cases are available, and e results show that 50 (or 30 per cent.) show benefit at is likely to be permanent, 51 (or 31 per cent.) er showing benefit for a period of more than three nths apparently became tolerant to the drug, in (or 33 per cent.) the incidence of fits was unaltered only decreased temporarily for a period of less an three months, while in the remaining 10 cases 6 per cent.) there was an increase of fits.

Out of the 50 cases showing benefit, 9 (or 5 per cent. the whole) have had their fits completely arrested such long periods—in no case less than two years— at one can anticipate with some confidence that ey will not recur.

Successful Cases.

A study of the features of the complaint in those nine cases fails to disclose much that might lead us to define a type particularly likely to respond to this form of treatment. The principal facts about them are as follows:—

CASE 1.—Male. Father had fainting fits as a boy. Two sisters have had fits. Epilepsy began at 18 months. No cause assigned. Type of fits, major attacks at the rate of seven a month, periods of automatism lasting 10 seconds at the rate of five a month. Intelligence quotient estimated about 0·70. Luminal treatment began at the age of 22. Immediate complete cessation of all attacks. Two years later patient left colony and is now, after six years of treatment, still free from any kind of fits and earning his living at poultry farming.

CASE 2.—Male. Mother's father attempted suicide. Epilepsy began at 8 years. No cause assigned. Type of fits, majors one every two or three months, very frequent very slight momentary attacks. Intelligence quotient 1·07. Luminal treatment began at the age of 12. After the first two months total cessation of all attacks, and now, two years later, is still free.

CASE 3.—Male. Mother's father committed suicide. Epilepsy began at 2 years, but there was a five-year period of freedom from fits up to 7 years. No cause assigned. Type of fits, petit mal lasting a few seconds in which he occasionally fell right down. Intelligence quotient 0·90. Luminal treatment began at age of 10. All fits immediately ceased, and now, nearly two years later, have not recurred. All-round mental improvement with luminal.

CASE 4.—Female. Family history nil. Epilepsy began at 6 months. No cause assigned. Type of fits, major attacks more than three a month. Intelligence quotient 0·82. Luminal treatment began at age of 12. Immediate cessation of all fits which, three years later, have not recurred. More irritable during first few months of luminal treatment.

CASE 5.—Male. Mother's uncle epileptic and insane. Epilepsy began at 8 years of age. No cause assigned. Had major attacks at the rate of three in two months. Intelligence quotient 0·90. Luminal treatment started at age of 12. Immediate and complete cessation of all attacks, and patient is now, five years later, still free from fits and earning his living in London.

CASE 6.—Male. Illegitimate. Aunt had epilepsy. Epilepsy began in second year and followed immediately on a fall from a high chair on to his head. Fits very irregularly, mostly of major type, and in the year before luminal was started averaging rather more than two a month. Intelligence quotient 0·79. Luminal started at age of 15, with resultant complete cessation of attacks, but marked increase of patient's irritability. Now, two and a half years later, patient has left the colony and is earning his living at gardening. The fits have not recurred.

CASE 7.—Male. Mother's brother infantile paralysis. Father's sister imbecile. Fits started at 4 years. No cause assigned. Type of fits, majors at rate of 12 a month, similar attacks with loss of consciousness but incomplete convulsions ten a month. Intelligence quotient 0·77. Luminal started at age of 8. Fits stopped at once and patient is still, three years later, free from them. The rapid mental deterioration which was in evidence before the fits stopped was arrested, but there is some reason to think that it is now slowly asserting itself again. Probably the boy will always require institutional care.

CASE 8.—Male. A brother died of convulsions. Epilepsy began at 4 years. No cause assigned. Type of fits, very frequent screaming attacks lasting a few seconds and occasional majors. Intelligence quotient 0·58. Luminal started at age of 21. Some mental imbalance is evidenced by short catatonic attacks during first few weeks of luminal administration. Apart from these, complete cessation of fits has continued for over five years. The patient's mental defect has, however, necessitated his retention in an institution.

CASE 9.—Male. Mother died of fits and tumour on the brain. A brother died of convulsions. Fits began at 13 years of age, said to have followed a fall. Fits of major type, averaging ten a month, and sometimes followed by periods of mental confusion with hallucinations. Intelligence quotient 0·84. Luminal started at age of 20 years. Fits continued for nearly two months and then suddenly stopped, and have remained in abeyance for three years. Former tendencies to bad tempers and antisocial conduct generally have largely disappeared under luminal.

Luminal Medication and the Age of the Patient.

In order to determine whether there is any relation between age and the response to luminal treatment, the 167 patients were divided into five-year groups, according to their ages when the drug was started and the effect on the incidence of fits was noted for each age-group as follows:—

Age in years	5–10.	11–15.	16–20.	21 or over.
Number of cases	16	85	34	32
Permanently benefited	56%	25%	29·5%	31%
Benefited for more than three months	19%	28%	32%	41%
No effect	12·5%	42%	29·5%	25%
Harmed	12·5%	5%	9%	3%

These figures show that the best results are to be expected in early life, and that in later years the drug is likely to have less effect either for good or ill.

Investigations were also carried out to see if the duration of the disease, the age of onset of the disease, or the sex of the patient had any influence in determining the response to luminal, but the results were inconclusive.

Incidence of Fits during Administration of Luminal.

The average number of fits per month was first determined in 157 cases who had had luminal-sodium for six consecutive months.

Months of administration	1st.	2nd.	3rd.	4th.	5th.	6th.
Average number of fits	2·8	3·83	4·55	4·02	4·25	4·8

Then the average number of fits per month in four six-monthly periods was determined in 65 cases in which luminal had been given for at least two years.

Half-yearly periods	1st.	2nd.	3rd.	4th.
Average number of fits	3·47	4·18	4·73	5·33

Finally, the average number of fits per month in eight six-monthly periods was determined in 24 cases in which luminal had been administered for at least four years.

Half-yearly periods	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.
Aver. number of fits	3·25	3·95	3·63	3·9	4·45	4·0	4·13	4·6

The comparatively low average number of fits in the last group of figures is, of course, accounted for by the fact that only cases which have made some improvement with luminal have continued to have it for so long as four years. These figures seem to show beyond any doubt that an acquired tolerance to luminal-sodium is the rule. It must set in pretty rapidly in many cases, but in others, though slow, it is progressive.

These results are in direct contradiction to those obtained by Patterson, Damon, and Levi, of the Craig Colony.[1]

Effect of Stopping Luminal upon the Incidence of Fits.

The administration of luminal has been stopped in a large number of cases because the drug has been useless, or because its period of usefulness has appeared to be over. In two cases the occurrence of rashes has led to the discontinuance of the drug. In a few cases mental alterations, as evidenced by abnormal conduct, have been the cause of luminal being stopped. Periods of abnormal conduct, however, not infrequently occur in epileptics apart altogether from any form of medication, and one should hesitate to ascribe them to any particular drug. Careful scrutiny of these cases in the light of their history, both before and after the period of luminal administration, leads to the belief that probably in only three or four were the mental alterations the outcome of the drug treatment.

The effect of stopping luminal on the incidence of fits is remarkable. In the first month after luminal was stopped, out of 65 cases 72·5 per cent. had more fits than the monthly average during the period of luminal administration, in 20 per cent. the incidence was the same, while in only 7·5 per cent. was it less. In many of the cases where there was a marked increase in the number of fits, luminal treatment was resumed in a few weeks. Even after these cases have been eliminated the incidence of fits in the remaining 45 cases, in which there is a record covering at least six months after the end of luminal treatment, shows an extraordinary rise. The average number of fits per month before luminal was started was 8·1, during luminal treatment was 6·5, and after luminal was stopped was 10·8.

If the cases be taken individually it becomes clear that in about 50 per cent. of the cases the effect of a limited period of luminal administration has been to leave the patient definitely worse off than he was before. It is worth noting that although a considerable increase of fits has followed the cessation of luminal treatment in so many cases, in only one case has the increase been of an order serious enough to endanger life.

CASE 10.—A young man of 19 was a bad case of epilepsy upon whose fit-incidence luminal-sodium had had but a transient effect. Accordingly, after seven months it was discontinued. A fortnight later the patient had a status epilepticus lasting several hours from which he only just recovered. He had had one attack of status previously.

The Effect of Luminal-sodium on the Mind.

Luminal is a sedative, and it was only to be expected that the immediate effect of giving luminal, even in the small doses used at Lingfield, would be to make the patient a little more sleepy and dull than usual. Such an effect was noted in a small proportion of the cases. It was never very marked, and as a rule it passed off in a few days. In no case was it serious enough to necessitate the cessation of treatment.

Other effects of luminal medication upon the mind and therefore of the conduct of patients, dramatic and far-reaching as they may have been, were, in my opinion, secondary to reduction or arrest of the fits. It is impossible to foretell what will happen if, in a chronic case of epilepsy with frequent attacks, the fits are suddenly arrested; and, as will have been made clear by the foregoing figures, luminal, if it is going to act at all, usually acts quickly. In nine cases out of ten the result is altogether favourable. The patient is brighter, his interest in his environment increases, his bad tempers are fewer and slighter, his asocial conduct tends to disappear. The consciousness of freedom from fits undoubtedly increases his happiness. In a small minority of cases, however, effects of a very different kind may be observed. That these may be varied, in quality and duration, may, perhaps, be best demonstrated by a short account of a few cases.

CASE 11.—A girl of 13 was having major fits at the rate of three in two days, as well as slighter attacks, when she was put on luminal. The major attacks stopped at once and the girl's mental condition, never too stable, rapidly changed for the worse. She refused to get up, but lay in bed, incontinent, noisy, and confused. After five days the luminal was stopped and the patient quickly regained her normal condition.

CASE 12.—The patient, aged 13, was also a troublesome girl who was prone to react to anything that interfered with her wishes by prolonged howling. At the time luminal was started she was having major fits at the rate of 12 a month. The fits stopped at once but the mental instability gradually became more evident, tempers were more frequent, and violence began to appear. Two months later an attack of acute mania necessitated a hypodermic of morphia followed by a few days in bed and some sulphonal. A fortnight after matters came to a climax. The patient became obstructive and abusive. She refused food, broke windows, and retreated under her bed, biting and kicking any who had the temerity to approach her. Sedatives in rather large quantities were called for and the luminal was stopped. The mental condition slowly subsided and the fits returned in a few days' time. In the 18 months that have since elapsed there has been no recurrence of mania or of such marked antisocial conduct, though the patient remains a difficult one to deal with.

CASE 13.—A long-established resident at the colony had been a troublesome school-boy and adolescent, with an

[1] Patterson, H. A., Damon, Le G. A., and Levi, P.: A Comparative Study of Various Methods of the Administration of Luminal in Epilepsy, Jour. Nerv. and Ment. Dis., 1926, lxiii., 446–455.

mperfectly controlled temper. At the age of 23, when he had a pretty regular incidence of four major attacks a month, luminal medication was begun with consequent mmediate cessation of all attacks. His conduct gradually became more and more abnormal. Violent tempers followed nsignificant provocations. He attacked other patients and finally knocked down a lady member of the staff, and after six months of luminal treatment had to be removed from the colony.

It will be observed that all these cases showed mental instability and asocial tendencies prior to the administration of luminal, and the exaggeration of these was, I believe, not directly due to the luminal itself, but was secondary to the arrest of their fits. It is cases of this type that has, I imagine, led various writers to assert that in arresting his fits by means of drugs we are doing an epileptic a grave disservice. That this was so in these cases is obvious enough, but to apply this dictum to epileptics generally is manifestly absurd. Anyone with much experience of epilepsy must have seen a rapid and progressive deterioration, mental and physical, cut short by an arrest or reduction of the fit-incidence by means of drugs.

Two other cases which present some unusual features may be recorded here.

CASE 14.—A girl, aged 7½, was subject to major fits at the rate of 23 a month, and was an exceedingly troublesome child. On 1 gr. of luminal-sodium daily the fit-incidence was reduced to eight a month, with a corresponding improvement in behaviour. At the end of three months, however, she became tolerant to the drug. Incontinence, apart from fits, reappeared and she became as noisy, mischievous, and restless as before. At the end of six months the daily dose was increased to 2 gr. The result was dramatic. The attacks stopped at once and her behaviour improved as though by a miracle. This happy state of affairs lasted for exactly a year. Unfortunately, the further sequence of events was not so favourable, but is of interest. Slight attacks without complete loss of consciousness began to manifest themselves and continued to do so irregularly at the rate of about five a month for a further period of two years. During this period her asocial tendencies slowly but surely began to get the upper hand again, and were, I think, accentuated by the early onset of menstruation. Periods of bad temper became more frequent and increasingly violent. She bit, scratched, and attacked those around her and tore her own clothing in shreds, and finally had to be removed from Lingfield on account of the grave detriment her presence caused to others. The major fits never returned. I am not inclined to think that luminal had any prejudical effect on this case; its effect for the first 18 months was clearly most favourable, and it served to delay for two or three years the development of a grave mental instability that was probably inevitable.

CASE 15.—A frail, undersized girl, aged 13, had a very large number of fits, both major and minor. After four and a half years at the colony she had made no progress; rather was it clear that she was pretty rapidly deteriorating mentally and physically. A daily dose of 2 gr. of luminal-sodium was started and in ten days there was a complete cessation of fits of all kinds. Within the same period there was a most extraordinary change in the girl's character. She became very irritable and miserable, at times indulging in copious crying, at other times insolent and making false charges against other girls. Gradually these temperamental changes became less noticeable and the patient became happier and more amenable to ordinary life. At the same time her physical condition improved dramatically. Before luminal was started her average gain in weight had been 1 lb. a year, but she now put on nearly a stone in five months. After four months of luminal administration two isolated major attacks occurred, and four weeks later a series of fits began which culminated within seven days in status epilepticus, hyperpyrexia, and death. There was no previous history of status in this case, and it looks as if luminal in arresting the fits had stored them up, as it were, until the breaking-point was reached and they descended like an avalanche with fatal result.

If this is the sequence of events it is a very rare one. Nothing similar is found in any of our case-histories at Lingfield. The nearest approach to it occurred in a girl of 9, who during five months of luminal treatment had monthly attacks of what were, in effect, status epilepticus lasting about an hour and a half, and who, when the luminal was stopped, reverted to four or five isolated majors a month.

Rashes.

Only two cases of rashes due to luminal have been observed. The first occurred in a girl of 15. Ten days after luminal was started a very marked erythema with raised papules appeared on the arms. The appearance was of measles superimposed on scarlatina. There was no rise of temperature. The drug was stopped, and the rash disappeared completely in a few days. A second case occurred in a boy of 12. The rash was exactly similar, but manifested itself within 24 hours of the first dose, and was widespread over the body and limbs. The drug was immediately stopped, but the papules were still visible, chiefly on the forearms, two or three weeks later.

The Effect of Luminal on Different Kinds of Attacks.

Like bromide, luminal is most effective in controlling major fits; automatism and momentary attacks of petit mal are much more resistant to medical treatment, though gratifying results with these do occur. It sometimes happens that with the reduction or arrest of the major attacks the slighter ones become more frequent, the process being reversed if the luminal is stopped. A very interesting case of the familial myoclonus of Unverricht showed this sequence of events most clearly. Luminal was given a good trial for two periods. Each time the major attacks were much fewer and the myoclonic spasms worse; as soon as the luminal was stopped the major attacks reappeared in large number, and the spasms were less. In this case the myoclonus was by far the most serious feature, and the patient was happier without luminal.

The Value of Luminal-sodium given Intermittently.

In one female patient, when the attacks almost always just preceded the menstrual period, luminal was given from the sixteenth day after the start of one period up to the commencement of the next. The result was unsatisfactory. The fits held off during the period of luminal administration, only to appear later, and the total fit-incidence, after three months' trial, was increased. On continuous daily doses a striking reduction in the fits was subsequently obtained. Luminal-sodium in isolated doses up to 5 gr. has been given after the first fit to several patients who usually have a large number of fits in succession. The adoption of this measure has very often been successful in preventing the occurrence of further fits. I have also used the drug hypodermically in doses of from 2–6 gr. in cases of status epilepticus. It is very hard to say how far the course of events in this condition is modified by any treatment. My general impression is that luminal has not been of much avail.

The Value of a Second Period of Administration.

In a few cases where the drug has been discontinued as of no value, a second attempt to control the attacks by luminal-sodium has been made. The fact that the second attempt, with the same dosage, is often more successful than the first seems worth putting on record. It is difficult to see why this should be.

Summary.

This paper records the effect of small doses of luminal-sodium on a series of epileptics whose condition has failed to improve on other methods of treatment.

In the majority of cases benefit was obtained at first, but if the fit-incidence over periods of weeks, months, or years be studied, it is apparent that there was a progressive tolerance, sometimes slow, sometimes rapid, to the drug. In about 1 case in 20 complete and probably permanent arrest of all seizures occurred. These favourable cases showed no features in common which would enable us to define a type of case likely to benefit by the treatment.

Whether the administration of luminal was of value or not, stopping it was almost always followed by an increase of fits, the incidence often being higher than before luminal was started. This is a serious feature of luminal medication.

Grave mental alterations following on the use of luminal occurred but they were rare, and it is submitted that they were the direct result of the abrupt cessation of attacks in chronic epileptics, rather than of luminal itself.

Rashes were only observed in two cases.

The investigations go to show that luminal is a drug that should be used with caution in epilepsy. It should not be prescribed unless there can be careful supervision of the patient's behaviour as well as an accurate fit record. An immediately favourable effect is no criterion of ultimate benefit. It may be justifiable to take some risks to find out whether the patient is one of the few fortunate ones whose fits will be permanently arrested by the drug, but the fact that risks are involved and that harm, not good, may result, should never be out of the physician's mind.

THE INFLUENCE OF ORAL SEPSIS UPON CARBOHYDRATE TOLERANCE IN NON-DIABETICS:

EFFECT OF SUBSEQUENT DENTAL TREATMENT.*

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THE power of focal infections to disturb sugar metabolism has been frequently noted in recent years, though precise observations are still scanty. Long before the general clinical use of blood-sugar estimations it was recognised that a carbuncle might be associated with glycosuria, also that the latter might disappear when the carbuncle healed. It was also noted that dental diseases such as caries and "pyorrhœa" were frequently associated with diabetes. The usual explanation was that the diabetes lowered the patient's resistance, but others thought that chronic sepsis anywhere, including the mouth, might sometimes cause diabetes.

Sir William Willcox [1] writes: "Streptococcal and other toxins may cause a toxic glycosuria, probably by impairment of the endocrine function of the pancreas. Dental sepsis is undoubtedly a factor in the causation of glycosuria in some cases, and it should always be removed in cases of diabetes. A rise in the carbohydrate tolerance has often been observed by me after the removal of dental sepsis in early cases of diabetes." Willcox also states: "It seems probable that diabetes mellitus is caused in some cases by irrecoverable damage to the islets of Langerhans by toxic absorption from dental sepsis."

The study of diabetes has been assisted in recent years by testing the carbohydrate tolerance with the help of blood-sugar curves, following the oral administration of 50 to 100 g. of glucose. This test has also been applied to studying the tendency to glycosuria in those with focal infections or other pathological lesions. Thus, Pemberton,[1] of Philadelphia, used it in many cases of rheumatoid arthritis among American soldiers and found a decreased carbohydrate tolerance in the majority. The degree of failure was proportional to the severity of the cases. He noted that in two cases where the focal infections of tonsillitis and dental abscesses respectively were present, the tolerance was restored to normal on the ablation of the foci. He also shows clearly by means of his blood-sugar curves, that the impaired tolerance continued in the chronic cases after the removal of all demonstrable foci of infection. This suggests that the prolonged action of a toxæmia may bring about a persistent physiological failure of the pancreas; in other words, may lead to the establishment of true diabetes mellitus. Pemberton remarks "Lowered glucose tolerance rests on fundamental pathological processes. It seems to stand in some relation to inflammatory processes at large, and it appears from the data adduced herewith that the incidence of an inflammatory process in a normal person may induce an impaired tolerance." Gay and Olmsted,[3] using the glucose-tolerance test in many diverse conditions, confirmed Pemberton's results in acute and febrile states of arthritis; Gay also noticed impairment of carbohydrate tolerance in furunculosis, so did Gettler and St. George. Holcomb [5] reports two cases of "diabetes" where carbohydrate tolerance was improved by removal of septic foci. The first was a clear-cut case of diabetes mellitus which was markedly improved by treatment of septic maxillary antra. The second case is more important from our point of view. The patient, when first seen, showed a disturbed blood sugar curve and had the clinical symptoms of polyuria, &c., pointing to diabetes mellitus. But after extraction of septic teeth with abscesses and the removal of a chronically inflamed appendix, the tolerance, according to the published figures, became entirely normal. This suggests that the disease was not true diabetes, but an example of toxic impairment of carbohydrate tolerance. Sansum (quoted by Holcomb) noted impairment of tolerance in a case of acute tonsillitis. Pringle and Miller [6] studied a large number of arthritics at Bath and confirmed in general Pemberton's findings of a lowered carbohydrate tolerance in this condition. They agree with him that the extent of impairment is parallel to the severity and that the tolerance returns to normal with convalescence—most rapidly when infected foci have been discovered and removed. They particularly mention three cases of impaired tolerance becoming normal after tonsillectomy and one after dental extractions for an apical abscess.

Present Investigation.

No one, so far as we are aware, has systematically studied the effect of oral sepsis and of its subsequent treatment, upon carbohydrate tolerance in non-diabetic patients, as measured by the blood-sugar curve following a standard dose of glucose. It was therefore decided to investigate a series of patients presenting the commoner types of oral sepsis, but without evidence of diabetes.

The patients were newcomers to the clinic of the Liverpool Dental Hospital. They were first examined and selected by Prof. W. Gilmour (the Warden), or his assistant who made the dental diagnosis. They were then examined by D. R. or H. E. as regards their general clinical condition, especially anæmia, dyspepsia, arthritis, or asthenia. The glucose-tolerance test was arranged as soon as possible and carried out in the Thompson Yates Laboratory of Pathology. The patients were asked to take a breakfast consisting of one cup of tea, one round of bread or toast, and one egg or one rasher of bacon and to report for the test two and a half hours later. The blood was taken from the finger with a MacLean pipette; a "fasting" sample was first collected, then 50 g. of glucose in 100 c.cm. of water administered, and further samples collected at half-hourly intervals up to two hours. The blood-sugar was estimated by the Folin-Wu technique.

We were reluctantly compelled to omit systematic urine tests because a number of our patients were women and there were no facilities. But the blood-sugar estimations afforded a very reliable indication of carbohydrate tolerance. The first glucose-tolerance test in each patient served two purposes: (*a*) to give the original state of carbohydrate tolerance, and (*b*) to exclude diabetes mellitus. None of our patients gave a curve which could be construed as diabetic; further, as clinical symptoms of diabetes were completely absent, they have been classified as non-diabetic.

After the test the patients were put under dental treatment and inspected from time to time. When Prof. Gilmour certified great improvement or a cure

* This investigation was carried out on behalf of the Dental Board of the United Kingdom, who assisted by means of a small grant.

he second tolerance test was done. The patients' ecords were kept on special printed forms. The ffect of oral sepsis upon the level and type of the lood-sugar curve was estimated in two different ays:—first by comparing the curve in the same atient before and after dental treatment; second y comparing the curve of the patient before or fter dental treatment with a "control average urve" from nine normal persons, also tested with 0 g. of glucose.

In order to simplify the task of comparing the hole test of one patient with that of another, the verage number of milligrammes of sugar present i the five separate estimations was calculated—viz., ne "combined estimation" (see Table I). This verage is, however, only a rough indication of the alue of the blood-sugar curve, for it does not show ne fasting level, the type of curve, nor the level fter the test.

The investigation was begun by D. R., and con-nued and completed by H. E., who also tested the ine normals. It was hoped to investigate many al sepsis patients, but they were extraordinarily luctant to undergo the carbohydrate tolerance st; several refused point blank. After exasperating isappointments, 11 were tested before treatment uring about six months. Eight of these were again sted after treatment; five were said to be cured nd three greatly improved. The average time etween the first and second tests was six months, ne longest eight months and the shortest four months. he remaining three patients refused to submit to a econd tolerance test, one female alleging that the rst test had seriously damaged her health.

With a view to diminishing the number of examina-ons required, the X ray picture of each patient, riginally decided upon, was dispensed with.

Clinical Histories.

CASE 1.—Female, aged 16. Seen Jan. 28th, 1926. Acute veolar abscess for three days (right upper first bicuspid). eadache; temperature 103° during tolerance test. Treat-ment: bicuspid extracted. Re-examined July 4th, 1926. "Mouth healthy."

CASE 2.—Male, aged 41. Seen April 14th, 1926. Large acute alveolar abscess "for few days" (right second lower molar). Several carious teeth. General pyorrhœa. "Some asthenia." Treatment: molar extracted. Ultra-violet rays. Re-examined Sept. 6th, 1926. Abscess healed. Pyorrhœa slight. Patient feels much better.

CASE 3.—Female, aged 11. Seen Jan. 22nd, 1926. Acute alveolar abscess "for few days" (right lower first molar). Extensive caries. A little subacute gingivitis. Abscess burst. Treatment: mouth washes. Right and left first lower molars extracted. Ultra-violet rays. Re-examined Sept. 4th, 1926. "Mouth healthy."

CASE 4.—Male, aged 19. Seen Jan. 21st, 1926. Chronic alveolar abscess three weeks (right upper first bicuspid). History of repeated abscesses. Five carious teeth. Some anæmia and asthenia. Treatment: bicuspid extracted. Carious teeth filled. Re-examined June 23rd, 1926. "Mouth healthy."

CASE 5.—Male, aged 18. Seen June 6th, 1925. Painful bleeding gums, acute membranous gingivitis and pharyngitis (Vincent). Treatment: local and ultra-violet rays. Re-examined Feb. 9th, 1926. General condition much improved. Mouth much improved, slight gingivitis round left upper lateral.

CASE 6.—Female, aged 55. Seen Feb. 16th, 1926. "Pyorrhœa," painful gums five years, much worse last three months. General suppurative gingivitis, specially around upper right molars which were loose. Slight anæmia and loss of weight. Treatment local to gums and ultra-violet rays. Re-examined June 18th, 1926. "Marked improvement. With a little local scaling and filling mouth should be quite healthy."

CASE 7.—Male, aged 64. Seen June 10th, 1925. "Pyorrhœa," painful gums round remaining four teeth in upper jaw; chronic gingivitis, teeth loose. Rheumatic pains in knees. Treatment: all teeth extracted. Re-examined Feb. 2nd, 1926. Gums quite healed. Feels well; gained one stone.

CASE 8.—Male, aged 30. Seen April 7th, 1926. Sore gums for three months. "Typical subacute suppurative gingivitis." Pockets teeth good. Some anæmia. Treatment: local. Refused second tolerance test. There is no record as to the loss or looseness of teeth in this case, but a hospital

TABLE I.—SHOWING THE CARBOHYDRATE TOLERANCE TEST OF 11 CASES OF ORAL SEPSIS BEFORE DENTAL TREATMENT; ALSO OF 8 OF THEM AFTER CURE OR GREAT IMPROVEMENT BY DENTAL TREATMENT.

Disease.	Glucose-tolerance test (blood-sugar in mg. per 100 c.cm.)												Clinical result.
	Before treatment of oral sepsis.						After "cure" of oral sepsis.						
	Before glucose.	Hours after glucose.				Combined estimations.	Before glucose.	Hours after glucose.				Combined estimations.	
		½	1	1½	2			½	1	1½	2		
Acute alveolar abscess.	100	272	200	150	120	168	99	143	101	91	95	106	Mouth healthy.
Acute alveolar abscess and pyorrhœa.	113	200	151	97	88	130	89	150	125	89	80	107	Abscess healed pyorrhœa slight
Acute alveolar abscess.	92	186	157	125	107	133	107	166	130	107	96	121	Mouth healthy.
Average for the 3 acute cases.	102	219	169	124	103	143	98	153	119	96	90	111	—
Chronic alveolar abscess.	105	136	114	97	87	108	83	136	120	90	100	106	Mouth healthy.
Gingivitis and pharyngitis.	103	125	111	100	94	107	100	166	150	115	103	127	Great improvement; slight gingivitis.
Pyorrhœa and gingivitis (5 years).	125	176	166	157	108	146	90	176	120	107	107	120	Marked improve.
Pyorrhœa (14 years).	115	176	150	107	100	130	91	147	125	111	95	114	Completely edentulous. Cured.
Average for 2 pyorrhœa cases with completed tests.	120	176	158	132	104	138	90	161	122	106	101	117	—
Pyorrhœa.	132	200	187	162	102	157	Refused test.						—
Pyorrhœa and alveolar abscess.	107	157	187	136	103	138	" "						—
Aver. for Cases 6–9* before treatment.	119	177	172	140	103	142	—	—	—	—	—	—	—
Aver. for Cases 5–9 before treatment.	116	167	160	132	101	136	—	—	—	—	—	—	—
Suppuration and necrosis lower jaw.	120	187	158	111	103	136	103	214	142	111	103	135	Mouth healthy; 2 sequestra removed.
Acute gingivitis and suppuration.	120	158	187	150	111	145	Refused test.						—
Aver. for 8 cases with completed tests.	109	182	151	118	101	132	95	162	127	103	97	117	—
Aver. for all cases before treatment.	112	179	160	126	102	136	—	—	—	—	—	—	—
Control tolerance test (av. of 9 normal persons; av. age 32).	93	145	112	97	83	106	93	145	112	97	83	106	—

* Pyorrhœa.

patient with "sore gums for three months" and "pockets" would almost certainly have "pyorrhœa"; he has therefore been classified with the other cases of "pyorrhœa." The patient is now at sea.

CASE 9.—Female, aged 21. Seen August 20th, 1925. "Pyorrhœa." Also acute abscess; teeth very carious. Extractions and local treatment to gums. Refused second tolerance test.

CASE 10.—Male, aged 50. Seen July 24th, 1925. Extensive necrosis left lower jaw following extraction of 25 teeth. Slight anæmia and asthenia, rheumatic pains in knees. Treatment: mouth irrigation, removal of sequestra and remaining stumps. Re-examined Feb. 9th, 1926. "General condition improved. Mouth entirely healed."

CASE 11.—Female, aged 30. Seen June 10th, 1925. Suppuration of socket and swelling of jaw following extraction left lower bicuspid 12 days before. Treatment: local. Refused second tolerance test.

Discussion of Results.

MacLean,[7] whose practice we followed in using 50 g. of glucose for the tolerance test, attaches special importance to three points in the blood-sugar curve: (1) the fasting level which should not exceed about 100 mg.; (2) the summit, which should not exceed 160 to 170 mg.; (3) the original, fasting level should

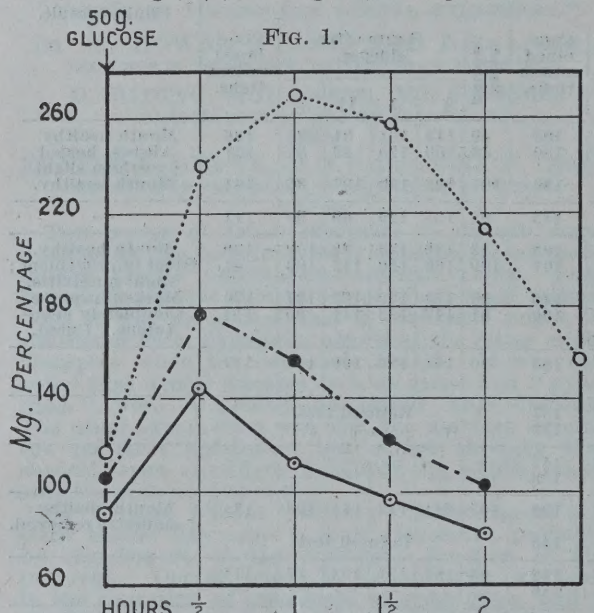

FIG. 1.

Carbohydrate tolerance test. Chart showing "average" blood-sugar curves of nine normal persons (bottom curve), of 11 cases of oral sepsis before treatment (middle curve), and of one case of moderately severe diabetes (top curve).

be reached or nearly reached by the end of the two-hour test. The marked differences in these points between a patient with moderately severe diabetes and a normal are well shown in Fig. 1.

Our 11 patients with oral sepsis have been roughly divided into three groups, though some were difficult to classify: (1) alveolar abscess, four cases, three acute; (2) gingivitis, five cases, one acute (Vincent), and four "pyorrhœa"; (3) post-operative suppuration and necrosis, two cases. The results of all the tests and of the normal control test are shown in Table I. The average figures for the 11 patients, given in the last line but one of the table, when compared with those of the control (last line of the table), show a slight but definite diminution in carbohydrate tolerance (see Fig. 1). The average "combined estimations" also show a diminution, being 136 mg. compared with 106. Figures obtained before treatment in the eight cases in which the tests were afterwards completed are very similar. But the average of their second tests show a definite improvement in tolerance (see table). Further study of the results reveals striking differences between the three groups of patients, these are summarised below.

Group 1.—The three cases of acute alveolar abscess (Cases 1–3) showed a marked diminution in tolerance, the greatest in the three groups. The average of each separate estimation is definitely higher than that of

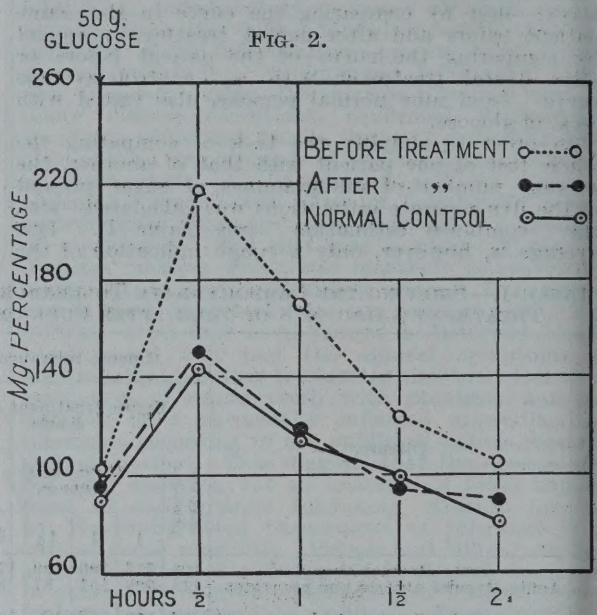

FIG. 2.

Carbohydrate tolerance test. Chart showing average blood-sugar curve of nine normal persons, also of three cases of acute alveolar abscess both before and after dental treatment.

the control by 7 per cent., 74 per cent., 57 per cent., 24 per cent., 20 per cent. respectively and the "combined estimation" by 37 per cent. The curve, however, is unlike that in a moderately severe case of diabetes (Fig. 1) notably in the lower fasting level, the pointed summit and the rapid fall resulting in a return to the original level at the end of the test. In Case 1, that of a female whose temperature was 103° during the test, the high level of the curve indicates that glycosuria must have been present about the end of the first half hour, the normal renal threshold for glucose being about 180 mg. per cent. After treatment, which cured the abscess in all and greatly benefited the pyorrhœa in Case 2, the

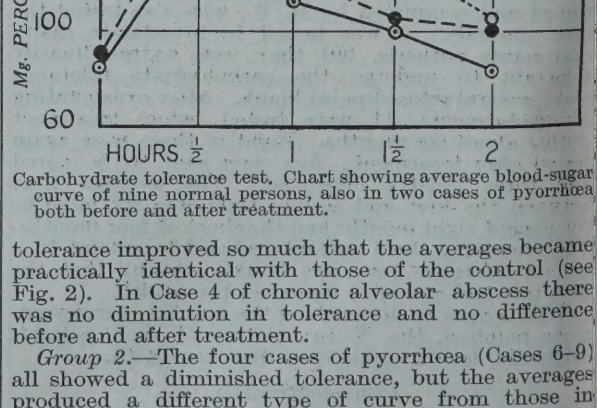

FIG. 3.

Carbohydrate tolerance test. Chart showing average blood-sugar curve of nine normal persons, also in two cases of pyorrhœa both before and after treatment.

tolerance improved so much that the averages became practically identical with those of the control (see Fig. 2). In Case 4 of chronic alveolar abscess there was no diminution in tolerance and no difference before and after treatment.

Group 2.—The four cases of pyorrhœa (Cases 6–9) all showed a diminished tolerance, but the averages produced a different type of curve from those in Group 1. The fasting level was higher than the control's—viz., by 26 per cent., and the fall was

delayed so that the summit of the curve became somewhat flattened and began to approximate to the diabetic type (see Fig. 1). In Cases 6 and 7, tested twice, the curve before the treatment was similar. After treatment, however, the tolerance improved and was only slightly less than the control's (Fig. 3). The failure to improve quite as much as in the alveolar abscess after treatment is, perhaps, partly due to age, for in later years sugar tolerance tends to diminish. Thus the cases of pyorrhœa averaged 59 years and of alveolar abscess only 22 years.

The differences in tolerance which have emerged in patients of these two groups would have been greater had the tests been made with 100 g. of glucose instead of 50 g. In Case 5 of acute membranous gingivitis and pharyngitis (Vincent) the tolerance was apparently less after cure than before, the combined estimations being respectively 107 and 127. This may be due to some difference in the patient's diet before the sugar test or to the failure to take the prescribed breakfast. Both, however, are normal curves.

Group 3 comprises two cases of post-operative suppuration and necrosis. The tolerance in Case 10 (a man of 50) was practically the same before and after treatment, while that of the other patient, which was distinctly diminished, was not tested again.

Summary and Conclusions.

1. Evidence has been produced from a study of 11 cases that oral sepsis in non-diabetic patients is usually associated with slight but definite diminution in carbohydrate tolerance. 2. This diminution was greater in the three cases of acute alveolar abscess than in the four of pyorrhœa. 3. Subsequent dental treatment of five of these seven cases, which cured or greatly improved the oral disease, was associated with an increase in tolerance, so that it practically equalled the tolerance of the normal control. This improvement from treatment is evidence that the oral sepsis *caused* the diminution in carbohydrate tolerance. Such a depression might, if prolonged, perhaps lead to glycosuria or even to diabetes.

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MULTIPLE CAVERNOUS ANGIOMATA OF THE SWEAT DUCTS

ASSOCIATED WITH HEMIPLEGIA.

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THE case which is about to be described would seem to be one of congenital multiple cavernous angiomata of the sweat ducts, associated with, but not due to, syphilis in a man 30 years of age, with a history of two hemiplegic attacks and symptoms of cerebral softening and hypothyroidism. The condition is sufficiently unusual to make a full account of interest.

The patient, male, aged 30, is the fifth child of a family of 11. The mother and father are both alive and well, and their Wassermann reactions are negative. Three of the children have died, the first two of meningitis at the age of 12 months and the youngest of tuberculous peritonitis. One brother shows the same skin condition as the patient.

The patient was a weak child, but states that the only illness he has had up to the age of 21 years was measles. He has never felt well, however, and has suffered from frequent attacks of bilateral frontal headache. He was rejected from the army in 1915. In 1918 he felt so run-down that he gave up work, and later in the same year he developed a right hemiplegia. He was then 21. The attack came on during the day, was sudden in onset, and preceded by no illness. Speech was not affected, and complete recovery took place in two years. In 1922, at the age of 25, he had a similar attack, but in addition there was involvement of the left side of the face and loss of speech. There was no loss of consciousness in either attack.

Since the last stroke, from which he has completely recovered, he has suffered from general debility and nervousness, and complains of generalised pains in the back and all four limbs, which he states have been continuous for the last eight years.

Condition on Examination.

The patient gives a general impression of mental dullness. Speech and articulation are normal. He is slow in all his movements, and complains of always feeling cold.

The optic discs show a varicose and degenerated condition of the retinal vessels but no hæmorrhages. The visual fields are full. The pupils are equal, circular and central, and react to light and convergence. The other cranial nerves are normal. There is no disorder of sensation or coördination. The upper and lower teeth can only be separated for about one inch. The jaw-jerk is present and the other reflexes are normal. The heart and other viscera are healthy. The temperature is usually about 98° F., and the average pulse-rate is 90. The blood pressure is 115 mm. Hg systolic and 90 mm. diastolic.

The *skin* shows multiple small pinhead disseminated angiomata distributed over the lower thorax, abdomen, lateral aspects of trunk, buttocks, thighs, and genitals. The arms and upper thorax are free. The mucous membrane of the lips, cheeks, and soft palate are also involved, but not the tongue. The spots are somewhat purplish in colour, and in some cases coalesce to form larger plaques. They are present in enormous numbers as if the skin had been peppered—a few appear purpuric owing to rupture either spontaneously or through slight traumatism, but none are of the well-known spider nævus type, which bleed externally when injured. There is a small nævus on the right upper eyelid and a yellowish-brown mole over the right clavicle. The condition is a congenital angiomatous one and not purpuric, the vascular spaces being apparently situated round the sweat pores.

The blood flowed readily from the ear and was distinctly pale and watery. The blood count shows 5,390,000 red cells and 9400 white cells per c.mm. The hæmoglobin is 59 per cent. and the colour-index is 0·55. Differential leucocyte count: polymorphs, 72·5 per cent.; lymphocytes, small, 21·5 per cent.; large, 4·5 per cent.; total, 26·0 per cent.; and large mononuclears 3·5 per cent. Eosinophils 1·0 per cent., but no mast cells. The films show general diminution in the size of the red cells with moderate anisocytosis. The blood on first examination yielded a negative W.R., but there was about half an hour's delay in the rate of hæmolysis. On second examination, taken 24 hours after a provocative intravenous injection of novarsenobillon, the W.R. showed a weak positive reaction with 4 M.H.D.'s of complement and quite definite as compared with negative sera. The cerebro-spinal fluid, which was under excessive pressure, shows 4 cells per c.mm., practically all small lymphocytes, with a very occasional endothelial cell. Total protein 0·04 per cent. Globulin, slight excess. Wassermann reaction, a weak positive reaction with about 4 M.H.D.'s of complement. Lange's colloidal gold curve was of the luetic type, 1233321000.

The X ray photographs of the skull show slight thinning of the bone in the right temporal region.

Histological Examination.

An excised piece of skin was fixed in formalin and put through for paraffin section—stained with hæmatin and eosin and by v. Gieson's method. Each section of the area, about ¾ inch long, shows one or two, and occasionally three, of the little subcutaneous vascular patches. They consist of, in section, some two, three, and four little irregular "cavernous" spaces, very much like those seen in a cavernous angioma of the liver, with connective tissue septa and walls, and a rather indefinite layer of lining cells, probably flattened endothelial cells, which are at some places fairly distinct with nuclei projecting slightly into the lumen, like ordinary vascular endothelium—but at other parts they are somewhat indefinite and at others apparently wanting—the wall at these places being formed distinctly by connective tissue. The tissue was extremely tough and difficult to cut, and it is a little difficult to decide whether some of the lining has been lost during the cutting and staining. The little "cavernous angiomata" appear to be situated at or near the openings of the sweat ducts. They are mostly situated just under the epithelium which is distinctly thinned over them, but in the connective tissue of the corium there is considerable hyperkeratosis of the adjacent epithelium, and also increased density of the connective

tissues of the surrounding cutis vera. The acini of many of the sweat glands are very irregular in size, some appear fairly normal, but, in the same group, other acini are dilated to a varying degree, from slightly—and with cubical to almost columnar epithelium, occasionally more than one layer deep—to more dilated spaces, almost small "cysts," lined with much more flattened epithelium, in some instances almost atrophied to the disappearing point. In one gland there was one small vascular space immediately adjacent to the acini, which very closely resembled the more superficial cavernous spaces, but this was exceptional, and this particular gland may be of some interest in the ætiology of

Section showing vascular space in relation to the opening of a sweat duct, epithelial keratosis, and a small cavernous vascular space resembling the more superficial ones adjacent to the acini of a sweat gland.

the condition. There appears to be no analogous condition of the sebaceous glands or of the hair follicles.

In most of the cavernous spaces there was a distinct excess of polymorphs, and the blood in some of the spaces was thrombosed. There were no surrounding "nævoid" cells, but a few polymorphs were also found in the surrounding connective tissue, indicating some slight inflammatory reaction. There was some extravasated recent blood amongst the loose cells of the stratum corneum, but this is probably "operative" in origin.

Conclusion.

The varicose and degenerated condition of the retinal vessels leads one to consider the possibility of similar involvement of those of the cortex as is frequently found in adenoma sebaceum. This might explain the dementia and the unusual age at which the hemiplegic attacks occurred—the result of hæmorrhages or thromboses. It is of interest while considering the patient's mental condition to call to mind that mental depression, which was a marked feature in this case, is a frequent symptom of affections of the sweat gland apparatus—i.e., lichen planus. From the endocrine standpoint the dryness of the skin, the pains in the limbs, situated near but not in the joints, the dull mental depression, the slowness of movement, and the constant chilliness seem to point to a diminished thyroxin secretion. The mother's W.R. being negative, as is that of the brother showing the same skin condition as the patient, would seem to indicate that the vascular lesions are not related to syphilis.

I am indebted to Dr. W. E. Carnegie Dickson, pathologist to the West End Hospital, for the micro-photograph and his kind help in the laboratory investigations, and Dr. Hildred Carlill for permission to publish the case.

AN INVESTIGATION INTO THE RESULT OF X RAY TREATMENT OF PRIMARY MALIGNANT INTRATHORACIC TUMOURS.

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AND
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THIS investigation was suggested by a case in which there appeared to have been a temporary disappearance of a sarcoma of the lung under X ray treatment. The details are as follows.

In June, 1914, a boy, A. A., aged 12, was admitted to the London Hospital. He was well until January, 1914, when he began to lose weight and to have night sweats. In April the mother noticed lumps appearing on the right side of the chest. On admission the child was wasted, the apex beat was in the left midaxillary line, there was dullness over the right side up to the second rib, and a network of greatly enlarged veins over the right chest and abdomen. Over the fifth and sixth ribs on the right side, just outside the nipple line, were two lumps the size of walnuts. A diagnosis of sarcoma was made. Under X ray treatment by Dr. Gilbert Scott the lumps and the enlarged veins disappeared completely, the heart returned to its normal position, and the chest became relatively resonant. He was discharged to a convalescent home in August greatly improved, and in September appeared to be well with no symptoms. In June, 1915, to our intense disappointment he returned to the hospital again, desperately ill, and died. At the post-mortem examination mediastinal sarcoma was found invading the lung, mediastinum, and pericardium.

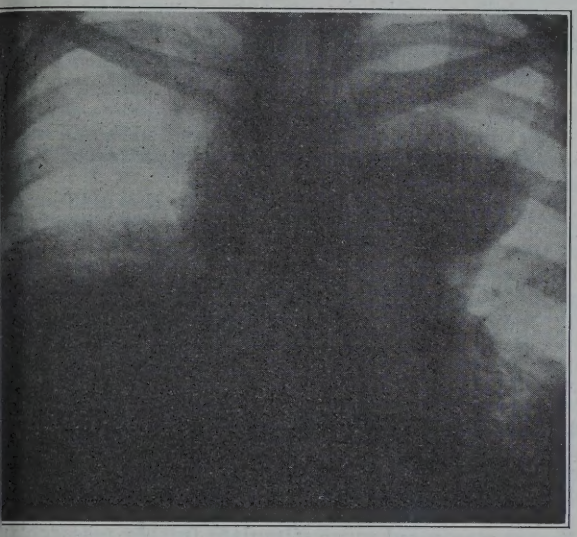
Since then, though we had known of temporary disappearance, no example of recovery from a malignant intrathoracic tumour had come under our notice. We therefore decided to investigate a number of cases in order to determine whether X ray treatment was ever curative, whether it prolonged life, or caused amelioration of symptoms.

Material.

Our material consists of 120 cases from St. Bartholomew's, Charing Cross, and the London Hospitals, and private cases. The hospital cases were under the care of the following physicians: Dr. James Calvert, Dr. Chandler, Lord Dawson, Dr. Morley Fletcher, Dr. David Forsyth, Prof. F. R.

Fraser, Dr. A. E. Gow, Dr. George Graham, Dr. Wilfrid Hadley, Sir Percival Hartley, Sir Thomas Horder, Dr. Robert Hutchison, Dr. R. A. Rowlands, Dr. Lewis Smith, Dr. Theodore Thompson, Dr. Cecil Wall. The treatment was supervised by Dr. A. C. D. Finzi, Dr. Russell Reynolds, Dr. Gilbert Scott, and Dr. Robert Knox.

FIG. 1.

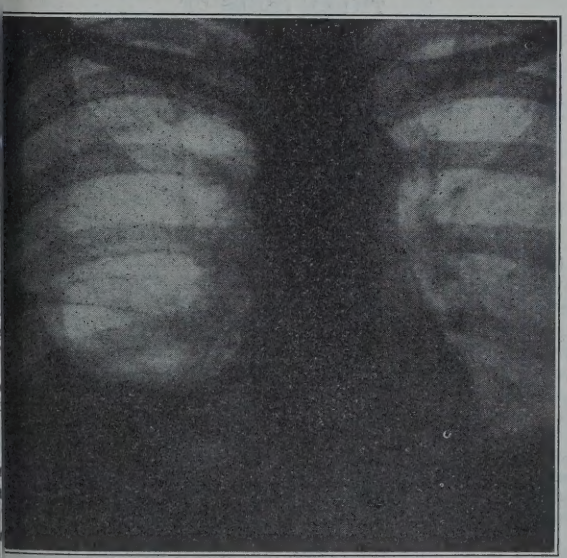


K. L., August 16th, 1923.

Diagnosis.

The diagnosis rests on symptoms, physical signs, adiography, histological examination of secondary eposits, and post-mortem examinations. We have ot attempted to differentiate between primary arcinoma of the lung and primary sarcoma of the ediastinum, partly because of the difficulty of their inical differentiation and partly because, even

FIG. 2.

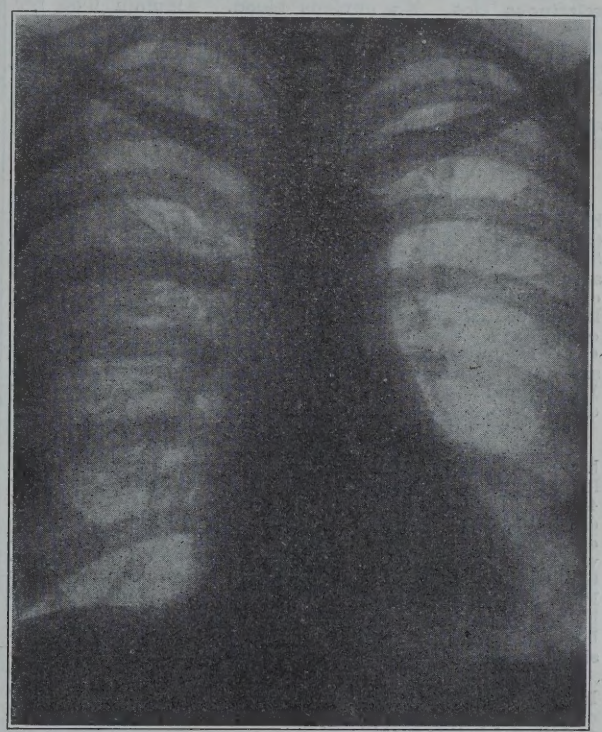


K. L., April 10th, 1924.

stologically, no hard-and-fast differentiation would accepted by all pathologists.

Of the 120 cases investigated, 59 have been treated th X rays, and followed up, either to a fatal mination, or, as with those still alive, to the present te. Of the 59 treated cases, 55 have died, a per-ntage of 93·2. Four cases in the series lived, and these will be reviewed later. The 61 cases which had no X ray treatment all terminated fatally. The average duration of the disease from the first symptom complained of until death was six months for those cases untreated and 11 months for those treated with X rays. The apparent shorter period for those cases untreated is probably fallacious, as many of the cases came to hospital in the last stages of the disease, some only three weeks before death. Moreover, some of the treated cases were of a more chronic type, where symptoms had existed 18 months before treatment was begun. We have no evidence that the treatment caused amelioration of symptoms, except in those cases where the tumour has disappeared temporarily or permanently. In fact, in many cases the symptoms after treatment were aggra-

FIG. 3.



K. L., May 5th, 1925.

vated, malaise or dyspnœa increased, or distressing vomiting was produced.

Review of the Four Cases of Apparent Recovery.

One, George W., aged 31, from the history, course, and X ray appearance would appear to have been a case of fibrosis and probably bronchiectasis of the right upper lobe.

The second, Eliza S., aged 60, was a right upper lobe case with a doubtful diagnosis.

The third, Ernest M., aged 50, was a case with shadowing in the neighbourhood of both lung roots with no certain evidence of malignancy either clinical or radiological.

The fourth case comes into a totally different category and will be described in some detail. All the evidence, clinical, radiological, and histological, pointed almost unequivocally to malignant disease.

Clinical Record.

K. L., aged 25, female, clerk. Admitted to St. Bartholomew's Hospital on August 11th, 1923, under Sir Thomas Horder and Dr. Gow, complaining of shortness of breath.

History of Present Condition.—Five months sore-throat, tired easily, three days later cough, weakness. "Influenza," bed one week. No improvement. Four months pleural effusion (right). Aspirated four times at intervals of three

to two weeks. Six weeks cough with sputum. Three weeks orthopnœa and swelling of left arm. No hæmoptysis. No pain in chest.

Condition on Admission.—Orthopnœic, sallow, face puffy. Temp. 98° F., pulse 130, resp. 40. Pupils equal. Veins at root of neck enlarged, both left and right. Enlarged glands at root of neck, both left and right. No unilateral sweating. No oral sepsis. No pericarditis. Swelling left breast and left arm and prominence to left of manubrium. Signs of bilateral pleural effusion—greater on right. Patch of friction sixth to eighth rib behind on left. Slight œdema of legs. Urine: Nothing abnormal found. Paracentesis thoracis right and left. Two pints removed from each side. Blood count: Dilated veins on left side of abdomen. Other systems: Nil. The radiographic appearance on August 16th is shown in Fig. 1.

Pathological Reports.

August 13th: Red blood cells, 4,180,000; white blood cells, 14,400; Hb., 66 per cent.; colour-index, 0·8.

Pleural Effusion.—4 c.cm. yellowish-green fluid. Large gelatinous clot. No obvious blood. Albumin 0·55 per cent. (Aufrecht). Centrifuged deposit: Lymphocytes 80 per cent.; endothelial cells, 5 per cent.; red blood corpuscles, 15 per cent. No malignant cells seen. Culture: (1) *M. catarrhalis*, (2) staphylococcus.

28th: Section of gland from right supraclavicular fossa; appearances those of endothelial sarcoma such as found in new growths of mediastinum (Sir B. Spilsbury).

Treatment.

X ray treatment under the supervision of Dr. Finzi began on August 24th, 1923. Dose, 4 H. Filter, 0·5 mm. Cu., + 1 mm. Al. 170 K. V. peak discontinous current at 54 cm. and repeated each day for about 12 days (different areas each day). Oct. 5th: Getting worse. Slight bout of fever (Sept. 1st) to 101° irregular for nine days. Neokharsivan. Intravenous 0·3, 0·45, 0·6, and 0·9 g. at intervals of six days. 22nd: X rays repeated. 3 H. Filter, 5 mm. Cu. + 1 mm. Al. at 54 cm. at different areas each day for six days. Nov. 16th: Collosal selenium, three doses of 1 c.cm. and three doses of 3 c.cm. intravenous on alternate days. Dec. 4th: Discharged in statu quo.

Jan. 2nd, 1924: Readmitted for X ray treatment.

Radiologist's Report.—The tumour in the mediastinum has disappeared. Still fluid at both bases. More on right level fourth rib ant. (Dudley Stone). 8th: *X ray treatment.*—4 H. Filter, 0·5 mm. Cu. + 1 mm. Al. 170 K. V. peak discontinuous current at 40 cm. to glands in left side neck, each day for five days (different areas). Went home and was well for ten days, then *neck painful* on movement. Gained in weight. Could walk five miles. March 11th: Pleural friction at angle of left scapula. Percussion dull below this. Friction right base. Fremitus present left base—absent right. 12th: *Radiogram.*—Still fluid on right side but clearer than before. Opacity at left base increased.

Clinical Report.—Lungs same. Abdomen: Dilated veins left side. Liver: Dullness three fingers-breadth below costal margin. Spleen not palpable. Something (?) felt to left and below umbilicus.

April 10th: Radiogram (Fig. 2).

11th: *Blood.*—Red blood cells, 4,050,000; white blood cells, 12,400; Hb., 75 per cent.; C.I., 0·93. Dec. 12th: Radiogram as before. May 5th, 1925: Radiogram. Base both lungs clearer than when last skiagram taken. I should now pass this skiagram as practically normal with the exception of a few dilated bronchi on both sides (Finzi) (Fig. 3).

At the date of writing, March, 1927, Dr. R. Harvey-Williams reports the patient as in perfectly good health and the skiagram is normal.

Discussion.

It may be said that the diagnosis of this case was wrong, and that the histologist was mistaken in his interpretation of the gland section. What are the possible alternatives? Lymphadenoma is the first that suggests itself. It would explain every sign and symptom and the radiographic appearances. The section of the gland did not support this diagnosis; but histologists, like clinicians, are not immune from error. If it were lymphadenoma, the result, in its permanence, is almost as remarkable as if it were sarcoma. Tuberculosis, we think, can be excluded positively. There was no evidence of this, and we doubt if a tuberculous lymphadenitis of the mediastinum has ever produced the huge masses seen in this case. Hydatid or dermoid cyst would not disappear in this manner. A simple inflammatory tumour or tumours is not infrequently the explanation given after the disappearance of an apparent malignant tumour, with or without treatment. In many parts of the body such an interpretation cannot be gainsaid. But what inflammatory mass can be conceived in this situation, giving rise to recurrent bilateral pleural effusion with glands in the neck? Syphilis can scarcely demand serious consideration. There is no record of a W.R., but even if the masses were regarded as syphilitic—which in our opinion would be almost incredible—the whole clinical picture is unlike anything we have seen, heard, or read of in cases of syphilis of the lung or mediastinum.

Conclusions.

1. *Cure.*—One case out of 59 treated by X rays appears to have been cured. All the untreated cases investigated died.

2. *Prolongation of Life.*—Except in the case cured there is no evidence that life was prolonged by treatment.

3. *Amelioration of Symptoms.*—Except in a few cases symptoms do not appear to have been relieved by X ray treatment. Yet it cannot be denied that the psychological effect is great. Whether it should be employed purely as a placebo may be a matter of opinion. Many pathetic letters received in answer to our inquiries showed that a number of the patients died in great suffering, and we feel that there is too great a reluctance on the part of the profession to employ adequate doses of anodyne in painful mortal disease.

4. That one case of apparently definite malignant disease was cured must stimulate further research in this method of treatment. Whether the other remedies combined with the X rays, such as salvarsan and selenium, had an influence is a matter deserving further investigation.

We would express our special indebtedness to Sir Thomas Horder, Dr. Gow, and Dr. Finzi.

Clinical and Laboratory Notes.

THREE CASES OF RUPTURE OF THE UTERUS AT THE SITE OF A PREVIOUS CÆSAREAN SECTION.

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IN the first of these three cases there were definite signs of the onset of labour—viz., dilatation of the external os and the presence of a "show"—though uterine contractions could not be felt. In the second case there was no evidence of the onset of labour, while in the third definite contractions of the uterus were felt together with slight dilatation of the cervix, and a show. The clinical history of the cases was as follows.

CASE 1.—A 3-gravida, aged 27. The first pregnancy had ended in the normal delivery of a living child 5 lb. 4 oz. in weight. The second labour was complicated by a central placenta prævia, and the patient was delivered by Cæsarean section on Nov. 26th, 1923. The puerperium was uneventful.

Pregnant for the third time, the patient was admitted at 6.50 A.M. on July 21st, 1925, and stated that she had come into labour at 5.30 A.M. She was seen by the house surgeon, who did not notice anything abnormal. I saw her at 10 A.M., and she complained of abdominal pain. The abdomen was somewhat distended and distinctly tender. The head of the fœtus could be felt presenting, and was apparently of normal size. On vaginal examination the os was dilated to the size of one finger, and there was a show. As bimanual examination was unsatisfactory, an anæsthetic was administered, and it was then decided that the head would pass the brim successfully. It was noted that one limb of the fœtus lying in front was very plainly palpable, and could be freely

moved about. The presence of the fœtal heart was not definite.

I saw her again at 2.40 P.M., and as the labour had not progressed at all, I decided to remove the fœtus by Cæsarean section. On opening the abdomen, a large quantity of blood was found free in the peritoneal cavity, together with the fœtus and placenta. The uterus was found firmly retracted below and to the left of the fœtus, with a rupture in its anterior wall, throughout the length of the previous incision. I removed the dead fœtus, 8 lb. in weight, and secundines, and as the wall of the uterus appeared thick and healthy I resutured the wound in the wall. At the end of the operation the pulse was good and its rate 122. Convalescence was uneventful.

The interesting point in this case is as to when the uterus had ruptured. If it had ruptured at the onset of labour it is difficult to account for the labour pains. There was no suggestion in the patient's condition of a large hæmorrhage, the only incomprehensible sign being the tenderness and slight distension of the abdomen which suggested a peritoneal crisis.

On Feb. 9th, 1927, this patient reported at the clinic, again pregnant, but uncertain of the period of amenorrhœa. On examination I estimated the duration of pregnancy to be about 26 weeks, and from that date until her admission to hospital on May 5th she was kept under observation. On the 16th, at 5 P.M., she began to have labour pains, and at 6 P.M., by the courtesy of Mr. Leyland Robinson, I did a Cæsarean section. On opening the abdomen there were surprisingly few adhesions, the great omentum being lightly adherent to the fundus of the bladder and low down on the abdominal wall. The previous scar was imperceptible before the uterus was emptied, and had retracted. The placenta was situated on the posterior uterine wall, and the child, a healthy female, weighed 6½ lb.

CASE 2.—A 5-gravida, aged 35. Her first three children had each been delivered by craniotomy. The fourth child had been delivered by Cæsarean section two years previously. During this pregnancy the patient had been under observation at an antenatal clinic, and arrangements had been made for delivery by Cæsarean section about Dec. 23rd, 1925, though the date of expected delivery was Jan. 6th, 1926. On Dec. 12th she complained of abdominal pain and went to bed. At 7 P.M. on Dec. 14th she had severe abdominal pain and vomited. At 9.30 P.M. she was admitted to hospital complaining of severe pain all over the abdomen and between the shoulders.

The house surgeon saw her, and noted that she was very collapsed, that there were no signs of the onset of labour, and that the fœtus was easily palpable. The temperature was 97·6° F., the pulse-rate 96, and the respiration-rate 24. The collapse was treated by hypodermic injections of ether etc., digitalone gr. 1/10, and saline solution 1 pint intravenously. The provisional diagnosis was perforation of the gut.

I was asked to see her on the next day when she had recovered from the collapse. I was struck by her pallor, and the pulse was weak and frequent. The abdomen was somewhat distended, tender, and no fœtal parts were palpable. I was of the opinion that the uterus had ruptured and recommended laparotomy. On opening the abdomen a large quantity of fluid and clotted blood was found free in its cavity. The uterus had ruptured throughout the length of the scar of the previous Cæsarean section; it had expelled the fœtus and placenta and was firmly retracted. The amniotic cavity was unruptured, the fœtus being still enclosed in the sac of membranes and placenta. At one spot the membranes were still attached to the interior of the uterus.

In this instance I did a subtotal hysterectomy after removing the dead fœtus and secundines. At the end of the operation the pulse-rate was 120 and the temperature 97·6° F. One pint of saline was given subcutaneously. On the next day 50 c.cm. of antistreptococcal serum was administered intravenously as a prophylactic, and after that the convalescence proceeded normally, the patient being discharged from hospital on Jan. 11th, 1926.

Microscopical examination of the uterine wall at the site of the wound did not reveal any excessive necrotic change. It showed the presence of a moderate number of polymorphonuclear leucocytes among the muscle-fibres, as well as some chorionic villi. The existence of the latter suggests that the placenta had been situated on the anterior wall of the uterus.

CASE 3.—A 2-gravida, aged 20. The first pregnancy had been terminated prematurely by Cæsarean section on Nov. 18th, 1925, for toxic albuminuria. The patient was desperately ill on admission to hospital, and after reacting slightly to treatment had relapsed; it was believed that she would not stand the strain of parturition. After delivery she had pyrexia up to 100·4°F. on the second and third days, but after that convalescence was normal and uninterrupted. With the second pregnancy she came under observation on Dec. 15th, 1926, with an indefinite history of the last menstrual period having occurred in April, 1926. I estimated the duration of the pregnancy to be about 35 weeks. She had had no trouble, there was no albuminuria, the measurements were normal, and I decided to allow her to attempt delivery normally. She remained in hospital until Jan. 16th, 1927, when she insisted on going out for a day or two. She returned at 5.45 A.M. on Jan. 17th, and stated that she had had severe pain since 5.30 A.M., sudden in onset and situated in the abdomen. The temperature was 97·4°F., the pulse 116 and weak, being at times imperceptible. She was seen by the house surgeon, who noted that contractions of the uterus were perceptible, and that the external os was dilated to the size of one finger. He did not think that the uterus had ruptured at that time, and he gave her morphine gr. 1/4 and digitalin gr. 1/100.

I saw her at 9.45 A.M., when the pulse-rate was 118, the skin was pale, cold, and moist, and the respirations were sighing in character. The abdomen was tender, but fœtal parts could be felt apparently normally, and *the fœtal heart sounds could also be heard.* Laparotomy was performed at 10.15 A.M. There was a large quantity of blood in the peritoneal cavity partially clotted. The great omentum was seen to be lightly adherent to the front of the uterus, round the gaping wound of the rupture, which had taken place through the lower four-fifths of the scar of the previous Cæsarean section. The placenta was seen to be situated on the anterior wall of the uterus over the site of the rupture, consequently it had not completely separated, the amniotic sac was unruptured, and the fœtus was still in utero. I rapidly removed the fœtus, but found it to be dead. Owing to the patient's youth and her desperate condition, I determined to suture the wound in the uterus, and in doing so found that the wall was very thin in its upper part. While hurriedly performing the peritoneal toilette, I collected about 150 c.cm. of blood, and after closing the abdomen by through-and-through silkworm-gut sutures, I transfused her with her own blood, filtered through gauze, followed by 100 c.cm. of normal saline.

On the next day the temperature rose to 100° F., and there was some trouble with the chest. On the three succeeding days the temperature rose to 99° F., and thereafter fell to, and remained at, normal. Convalescence proceeded interruptedly. The "chestiness" cleared up in three or four days.

The points of interest in this case are: (1) The uterus ruptured without expelling the fœtus into the uterine cavity. This, I believe, was due to the fact that the placenta was on the anterior wall and helped to limit the separation of the edges of the rent. (2) The fœtus lived for some hours after rupture took place. (3) In transfusing into a vein, I certainly introduced small clots, and the products of thrombosis of the blood, into her circulation, and I almost expected to produce a generalised thrombosis. At no time, however, was there even a suggestion of pulmonary infarction, though particular attention was paid to the examination of the chest. In this case I propose to excise the thin scar in the uterus before the next pregnancy.

Conclusion.

It is difficult to account for the rupture in these cases. The previous Cæsarean sections had all been done by an experienced surgeon. In no case was there any suggestion of sepsis after the section, not even in the first, which was done as an emergency. In all three of them rupture occurred right at the commencement of labour, there being no question of the scar having to withstand the strain of the expulsive stage; indeed, in the second case there was no clinical evidence of the onset of labour. From this fact one infers that, in cases which are being allowed to go into natural labour after having had a previous Cæsarean section, if the labour starts without rupture of the uterus it can be expected to terminate without risk of rupture. These cases apparently support the dictum, "Once a Cæsarean, always a Cæsarean," to which, however, I do not subscribe, as I see every year a number of cases, delivered per vias naturales, which have previously had Cæsarean sections for conditions which are not present in the

labours in question. The first two cases illustrate the well-known fact that the parturient woman can stand an enormous loss of blood, and also that the uterus tends to empty itself when ruptured, and having done so, retracts efficiently and prevents a further loss of blood both from the placental area and the site of the rupture. In the third case the situation of the placenta on the anterior wall acted mechanically in limiting the separation of the edges of the wound and expulsion of the fœtus and its appendages.

The situation of the placenta on the anterior wall of the uterus under the site of the old scar may predispose to its weakening and rupture. In the second and third cases there was definite evidence of the placental site being in front, and in the first case, in the recent Cæsarean section, when the scar of the previous rupture was found to be sound, the placenta was situated behind.

A CASE OF
PRIMARY ACTINOMYCOSIS OF LUNGS
WITH SECONDARY PERITONITIS.

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THE diagnostic difficulties in the following case make it of interest.

The patient, an unmarried girl aged 19 years, was employed as a lamp-shade maker. She had been treated for anæmia four years previously, but had otherwise been fairly strong. There was no history of any chest trouble. Having felt out of sorts for a week, she vomited on Nov. 19th, 1926. The vomiting was followed by pain in the left shoulder, hiccough, and slight hypogastric pain with smarting on micturition. Vomiting and constipation continued until Nov. 23rd, after which the bowels were open daily. On the following day she had a slight rigor. There was no cough or headache at any time.

She was admitted to hospital on Nov. 26th with fever, considerable hypogastric distension, an indefinite lump in the cæcal region, having some overlying rigidity and tenderness, and a similar lump in the left iliac fossa. There was a rough pleural rub and signs of consolidation over the left lower lobe. Per rectum the uterus was found to be normal in size, retroverted and fixed. The number of white cells in the blood was 52,000 per c.mm.; the urine was clear and a blood culture was sterile. While she was under observation her temperature ranged between 100°–103° F., her respiration-rate was about 30, and her pulse slowish. On Dec. 1st a pleural rub appeared at the right base, and a small quantity of slightly turbid fluid was aspirated from the left chest. This fluid remained sterile after prolonged aerobic culture, but contained numerous polymorphonuclear leucocytes. At this time the provisional diagnosis was "primary pneumonia with pneumococcal peritonitis."

On Dec. 4th she had several syncopal attacks and thrombophlebitis of the left axillary vein was noted. The abdominal distension increased in spite of active treatment, and she finally presented the picture of late generalised peritonitis. On Dec. 10th she began for the first time to cough, and brought up a quantity of very foul blood-stained sputum. The cough continued until her death on Dec. 12th, but there was no further expectoration. It is to be regretted that no examination of this sputum was made.

Post-mortem Report.—Moderate emaciation. Diffuse, almost confluent broncho-pneumonia of both lungs with multiple abscess formation. One abscess at the left base perforating the left dome of the diaphragm on to the upper surface of the left lobe of the liver. Pleuræ markedly inflamed and but slightly adherent. One large vegetation on the mitral valve; the heart otherwise apparently normal. Abdomen showed generalised fibrinoplastic peritonitis with left subphrenic abscess (fluid content slight). Scar of healed ulcer in first stage of duodenum. Mass previously felt in right iliac fossa consisted of distended thin-walled cæcum adherent to anterior abdominal wall. Spleen of septicæmic type. Number of small infarcts in kidneys. The remaining organs showed no unusual features.

Microscopical sections of lung, mitral valve, and stomach were prepared and disclosed: broncho-pneumonia with abscesses containing numerous masses of Gram-positive streptothrix morphologically identical with *Streptothrix actinomyces*; acute fibrinous endocarditis of mitral valve with no Gram-positive organisms and very few leucocytes; acute inflammation of serosa of stomach.

The order of events therefore appears to have been: (1) primary actinomycosis of the lungs; (2) perforation of the diaphragm with production of left subphrenic abscess and generalised peritonitis.

I am indebted to Dr. J. I. P. Wilson for permission to publish this note, and to Dr. W. W. Woods, London Hospital, for his kindness in supervising the post-mortem examination.

A CASE OF
PERFORATION OF A GASTRIC ULCER
IN A BOY OF TWELVE.

BY VICTOR P. ROBINSON, B.M., B.CH. OXF.,
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THE following case of perforating gastric ulcer seems worthy of record.

The patient, a delicate, undersized boy of 12, had been previously in the medical wards of the Royal Infirmary, Sunderland, from March 3rd to May 4th, 1927. According to the notes he had complained of pain in the stomach for three months and of vomiting for two months. The pain was of gradual onset, was sharp and stabbing in character, came on about five minutes after food, and lasted for about half an hour. It was felt in the mid-line of the epigastrium and was relieved by pressure. Soon after the onset of pain vomiting came on and relieved it to a varying extent. His bowels acted regularly. He had lost flesh but gained 4 lb. whilst in hospital. On discharge his weight was 4 st. 13 lb. He had no cough, sputum, nor night sweats. He had had diphtheria. On admission nothing had been made out in his chest or abdomen, and his fæces contained no occult blood as shown by the benzidene test. The urine was normal. He was treated in bed on a verandah, and was dieted, first on milk, then on light diet with fish, and finally on full diet on April 22nd, but he still had some pain.

Two days after his discharge on May 4th his pain got worse, and on May 13th, as he was about to get up in the morning, he was seized with sudden severe abdominal pain which doubled him up and caused vomiting. He was brought again to hospital, where I admitted him under the care of Mr. S. Raw, honorary surgeon. The boy looked ill and was suffering severe epigastric pain. His temperature was 99·6° F., the pulse-rate 99, and the respiration-rate 28; his tongue was furred, but his teeth were good; the abdomen was rigid, and its movements restricted, especially in the upper half; respiration was thoracic only. He was tender over the epigastrium but not over the appendix. The abdomen was resonant to percussion, the liver dullness was diminished, but there was no shifting dullness. A diagnosis of ruptured gastric ulcer was made.

At 4.40 P.M. on the same day he was operated upon by Dr. Geoffrey S. Robinson, senior assistant surgeon, under chloroform and ether (1 in 32) anæsthesia, through a right rectus incision. Gas escaped on opening the peritoneal cavity, which contained stomach contents. These were mopped up and a perforation 3/16 in. across was found on the anterior wall of the stomach, half way between the fundus and pylorus and nearer the lesser than the greater curvature. The ulcer itself was thick and more than ½ in. in diameter. The opening was closed and the ulcer infolded by catgut sutures with some difficulty, and a piece of omentum was stitched over the suture line. The abdomen was closed without drainage, the muscles were sutured with chromic catgut, and the skin was united with Michel's clips. For some days there was a discharge from the wound and the boy became very ill with broncho-pneumonia, but this cleared up in ten days after he was placed on an open-air balcony. He gradually improved, put on flesh, and was discharged cured on July 23rd.

I am indebted to Mr. Raw for permission to publish these notes.

THE Sheffield Joint Hospitals Council has under consideration the establishment of a hospital at Sheffield to be occupied entirely by paying patients. It is thought that in a city with a population of half a million there ought to be at least 10,000 people who would desire such a scheme and would be willing to pay an annual subscription of £10 10s.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 557.*)

SECTION OF OPHTHALMOLOGY.

WEDNESDAY, JULY 20TH.

THIS Section met under the presidency of Dr. A. H. H. SINCLAIR (Edinburgh), and the first subject of discussion was

OPTIC NEURITIS.

Prof. HENNING RÖNNE (Copenhagen) said that unfortunately the terms choked disc and optic neuritis were employed in different senses, and (what was worse) with differing meanings, by the ophthalmologist and the neurologist. Choked disc meant the condition in which the swollen disc had attained the arbitrarily fixed minimum elevation of 2 dioptres. The important question was whether the neuritis shown in the disc was in the nature of an œdema, indicating increased intracranial pressure, or was an indication of a local inflammation of the optic nerve. It was not always very easy to decide clinically between (1) a primary papillary œdema with functional disturbance resulting from secondary changes in the nerve-fibres, and (2) a primary lesion of the optic nerve with secondary papillary œdema. Behr had endeavoured to introduce a special term for genuine papillary inflammation—namely, papillitis—and to distinguish ophthalmoscopically between papillary œdema and papillary inflammation, but Prof. Rönne thought it impossible to maintain this distinction, for, as a matter of fact, if there was papillitis there was œdema, whatever the producing cause might be. When the inflammation in the optic nerve was situated very far forwards and involved the papilla, there was sure to be roundcelled infiltration within the eyeball with opacities in the vitreous humour.

The term "retrobulbar neuritis," said Prof. Rönne, as a clinical expression for a group of diseases in which either there might be no changes in the disc recognisable with the ophthalmoscope, or there might be changes of varying degree, even to the extent of choking of the disc. The most important clinical feature common to the group was the central scotoma. Between the two extremes there were links which showed that they could not be of altogether different origin, and it was a notable fact that in disseminated sclerosis either type might be present. Typical cases of retrobulbar neuritis might show choked disc, the orbital pains might be absent, the tendency to spontaneous improvement might not be evident—e.g., in Leber's atrophy—and areas beyond the macula might be involved, so that it was impossible to depend on any one symptom or sign for purposes of classification. Of great interest was the condition of the medullary sheath. In disseminated sclerosis the sheath was often destroyed, leaving the axis-cylinder naked, and perhaps this might be considered a feature of the entire group; it was certainly present in some cases of diabetic amblyopia. It had been suggested that this might be the real characteristic of the group—namely, that by virtue of a selective action the macular fibres were more susceptible of the loss of their sheath than the peripheral fibres.

Having thus reviewed the three clinical types—papillary œdema, optic neuritis, and retrobulbar neuritis—Prof. Rönne turned to a group not coming strictly under any of these clinical headings—namely, choked disc with sudden initial blindness. This type, he said, was very imperfectly noticed in the literature, and in such a condition the questions obviously arose: Was the sudden loss of sight a direct consequence of the choked disc; or were the two set up, relatively independently, by the same cause; or was the choked disc a consequence of the vision-destroying lesion? He was inclined to accept the last of these explanations. He found as a cause of the blindness a conspicuous plaque, of degenerative nature, arising from complete destruction of the medullary sheath, the place of which was filled with fatty and granular cells. Such plaques might even be present in the chiasma, destroying both optic nerves, and were also to be found in cases of pseudo-tumour with myelitis. Changes in this plaque-formation made it possible to account for those singular cases in which a central scotoma might change into a bitemporal hemianopsia. It was unnecessary to assume that a plaque once formed meant a permanent and distinctive lesion; recovery and resumption of function were not excluded. In the examination of fields, which thus varied from one point to another, Prof. Rönne advocated a movement of the test object along a line at right angles to the edge of the scotoma or blind area, irrespective of the customary circles or radii.

Dr. J. V. PATERSON (Edinburgh) said that the observer should not allow himself to be hidebound by rigid terms such as optic neuritis and choked disc. It was evident that there was a class of cases in which the essential feature was not one precise ophthalmoscopic picture, but the existence of intracranial pressure. In such cases the readings obtained with the Gullstrand ophthalmoscope promised to be of great assistance, and careful investigation must be made of any visual disturbance and of radiograms. For such a group of cases Traquair considered that the term "plerocephalic œdema" should be adopted. Exactly how the œdema produced the ophthalmoscopic picture was not very easy to explain, but apparently the old theory that there was some irritant or toxic substance in the fluid had fallen into disrepute, and indeed the improvement obtained by trephining, and the completeness of the recovery which might result, seemed to negative it. He reminded the meeting of the readiness with which an œdema may come on in the eye, as, for example, the chemosis seen when hordeolum was coming on in the adult. He thought that an analogous condition might explain some of the transitory appearances.

Dr. Paterson quoted with approval Behr's description of the fundus in the retrobulbar type of neuritis, but remarked that it was well nigh impossible to make any differentiation of type by the ophthalmoscopic appearance alone, and these cases certainly did not form a group so clearly outlined clinically as the plerocephalic series. They might be classified, however, into certain subgroups, of which two were of more importance than the rest: (1) A small group in which inflammation of the nerve had spread by contiguity; in these cases the periphery of the field seemed to be involved rather than the centre, and among them were cases of optic atrophy in children with a positive Wassermann. (2) A large group due to toxins circulating in the blood; in some of these cases the nerve head exhibited definite changes, if the focus was near to the globe. Usually one eye only was affected, and there was a strong tendency to complete or nearly complete recovery. He expressed himself as very sceptical of the alleged close and frequent relation between disease of the nasal sinuses and retrobulbar neuritis; his experience gave little or no confirmation of such a view, though he did not deny that such a relation might exist. The ophthalmic surgeon faced with a case of retrobulbar neuritis might often feel called upon to invoke the assistance of the rhinologist, but among all his cases of nasal disease did the rhinologist ever find his patients complaining of loss of sight?

There were also certain other minor groups, besides those of diabetic and tobacco amblyopia, which were not included in the subject under debate.

Dr. A. J. BALLANTYNE (Glasgow) said that the consultant ophthalmic surgeon had chiefly to deal with (*a*) papillœdema connected with intracranial tumour, meningitis and other central disease, and (*b*) the optic neuritis or neuroretinitis of renal disease. Often the earlier stages might be unobserved, for there were no visual disturbances to call attention to the eye. It was impossible altogether to distinguish between optic neuritis and choked disc with

prominence of the disc amounting to 1·5 dioptres or more, because such an œdema must have passed through an earlier stage indistinguishable from optic neuritis; in any given case of this type an apparent optic neuritis might be a choked disc in its early stage. He deprecated too ready acceptance of clinical records of recovery of vision in retrobulbar neuritis after operations—e.g., on the nose—as such cases had a tendency to recover spontaneously, and false conclusions might readily be drawn from the history. He was in favour of a conservative attitude in regard to operating; possibly in some cases the benefit after operation had been due merely to local blood-letting, ventilation, or to the use of adrenalin. He would certainly not be disposed to resort to operative treatment until six weeks had been spent in milder measures. After describing a number of cases under his care, Dr. Ballantyne concluded by saying that when choked disc occurred after fracture of the skull it was often attributed to hæmorrhage into the sheath of the nerve, but he had one case in which this could not possibly be the explanation, since the patient had retained excellent macular vision.

Prof. VAN DER HOEVE (Leyden) thought it not altogether disadvantageous to have the two names, choked disc and optic neuritis, but said it was a pity when they were confused, and employed without sufficient attempt at precision. Uhthoff's rule of swelling to an extent of 2 dioptres was not meant to be read too rigidly. He thought that operation in cases of choked disc was best done when vision was just beginning to fail, and inasmuch as it was never possible to be absolutely certain of the diagnosis, it was wise to operate, as otherwise blindness was certain, though the patient might live a long time. He did not advise operation when there was choked disc with sudden initial blindness. In all head cases the coöperation of radiologist with neurologist (or rhinologist) and ophthalmic surgeon was essential, and the last-named ought to be as familiar as possible with X ray photographs of the skull. By employing the ophthalmoscope during the operation Prof. van der Hoeve had satisfied himself that it was the opening of the dura which was the essential point in relieving the pressure-œdema. He agreed that the relation between retrobulbar neuritis and the nose was real, but thought that its importance was greatly exaggerated.

Dr. H. M. TRAQUAIR (Edinburgh) said that it was unjustifiable to use a term ending in "itis" unless it was certain that actual inflammation was present. He preferred the term "plerocephalic œdema" for a large proportion of the cases with choked disc. He rather thought that the central scotoma after hæmorrhage was not a true retrobulbar neuritis, but a toxic effect due to the hæmorrhage. Tabetic atrophy he suspected of being a form of neuritis.

Dr. GEORGE YOUNG (Colchester) described a case in which choked disc appeared within a few hours after a head injury which had produced a large intracranial hæmorrhage. The patient was promptly trephined, the hæmorrhage was stopped, the blood-clot was removed, and the result was complete recovery.

Sir JOHN PARSONS (London) regarded Prof. Rönne's explanation of the occurrence of plaques in disseminated sclerosis as very important.

Dr. G. E. DE SCHWEINITZ (Philadelphia, U.S.A.) laid down two rules in regard to operation in choked disc—viz., that time must be taken to make a thorough conservative investigation of all the facts, and that when any interference with vision could be discovered (e.g., enlargement of the blind spot) by refined methods, operation should be promptly performed. At a late stage operation did no good visually, though it might be required for the relief of pain.

Prof. W. H. WILMER (Baltimore, U.S.A.) had seen cases in which opening up of the sinuses had given great improvement in cases of central scotoma with neuritis, but if it was to be of service the operation must open up the cells immediately surrounding the nerve canal.

Prof. W. H. WILDER (Chicago, U.S.A.) agreed with Dr. Paterson about the transitory œdema in the neighbourhood of a focus of inflammation, and thought that Prof. Rönne's plaques might be of the nature of some such pre-inflammatory change.

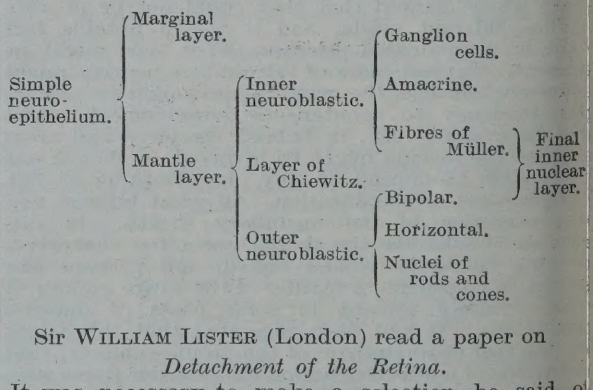
THURSDAY, JULY 21ST.

At the second session of the Section Miss IDA MANN (London) read a paper on the

Comparative Development of the Retina.

Her paper dealt mainly with two aspects of the process of differentiation in the developing vertebrate retina. In the first place, it was shown that there is a definite sequence of events in the development of the retina, which holds good in any animal of the vertebrate type so far examined. In the second place, attention was drawn to the rather curious mode of development of the amacrine cells, which empirically show very close connexion with the ganglion cells, though in the adult state they are much more intimately associated with the bipolar cells. The retina, said Miss Mann, is evolved from the simple neuro-epithelium of the optic cup by a process of separation of the nuclei into layers. At first only one layer of nuclei can be recognised. Very early, however, two zones, an inner and an outer neuroblastic layer, become visible, separated by an interval, the transient fibre layer of Chiewitz. From the inner neuroblastic layer are differentiated the ganglion cells, the amacrine cells, and the nuclei of the fibres of Müller. From the outer neuroblastic layer come the nucleus of the bipolar cells, the horizontal cells, and the nuclei of the rods and cones. The final stage is reached by the disappearance of the transient fibre layer of Chiewitz and the consequent blending of the amacrine and Müllerian fibre nuclei with the bipolars to form a definite inner nuclear layer. The transient existence of the amacrine cells as a separate layer is most marked in birds and in the fovea centralis in man, though it may also be present in other vertebrates. When marked, it is possibly associated with a final high grade of functional activity. Only in birds is the same height of development reached as in man, but in the birds this development is over a large area, whereas in man the process reaches its height in the macula only.

The following diagram was shown to illustrate the development of the retina:—



Sir WILLIAM LISTER (London) read a paper on

Detachment of the Retina.

It was necessary to make a selection, he said, of those cases of simple detachment which were suitable for treatment. Certain cases gave a reasonable chance of success; others gave none. When both eyes were affected, or when there was only one seeing eye, there was probably no reasonable chance of success, and it was best to mark time, to make the patient feel that everything was being done, and to employ rest in bed, bandages, &c. It was on the question of treatment in cases of detachment occurring in one eye only that there seemed to be divergent views. In spite of articles in the press claiming successes amounting to 100 per cent. the real prospect of restoring sight was very slight. Only those cases in which there was reasonable chance of success

ould be subjected to operative treatment. Unsuccssful treatment meant not only monetary loss to e patient, but loss of prestige to the operator and s profession. Some surgeons frankly stated that e condition was hopeless; some never advised ything beyond rest, which might consist of lying wn for 20 minutes, or of complete rest with the ad never lifted from the pillow for weeks. The ajority, he imagined, advised rest, constitutional eatment, and counter-irritation, and if these were successful, then resorted to operation. He had ason to think that a large number of cases were eated on a purely routine plan without any endeavour find the cause in the individual case; but sometnes it was possible at least to make a reasonable ess at the reasons for detachment. The detached tina had either been pushed off the choroid from thout or dragged in from within or floated off through hole in the retina. When it was dragged in by atricial bands in the retina itself, operative treatent could be of no avail, but if the bands were rmed in the vitreous, it was not impossible that nefit might result from their division. There peared to be a general consensus of opinion that nen holes were present operative treatment was ntra-indicated, and that had been the conclusion a committee of the Ophthalmological Society 916). It was, then, of vital importance before ciding upon operation to be satisfied that no hole isted. As a matter of fact, however, careful examition would not show a hole in an invisible part of e fundus. The retina at the edge of the hole was vays rolled inwards on itself, and often showed stic degeneration—so much so that the existence a hole had been attributed to the rupture of one of ese cysts. Round it the vitreous was often someiat denser; at points there might be a firmer achment than was normal between retina and oroid. When the surgeon was confronted with a se giving no obvious clue to the actual cause of the achment, and with nothing definitely to contralicate operation, it was best to spend a fortnight such measures as rest in bed, absorptive treatnt, counter-irritation, and subconjunctival injecns. If these failed, operation should be done. e treatment ought to be thoroughly and sufficiently ried out, and the patient should have no reason to l that he had missed any fair chance that operation other measures might have afforded him.

Dr. W. CLARK SOUTER (Aberdeen) read a paper on

Spontaneous Reattachment of Detached Retina.

er giving short notes of six recent cases (two umatic, two idiopathic, one myopic, one during gnancy) in which a gross detachment of retina l apparently disappeared, leaving choroidoretinal ophy-like changes in three cases, retinitis striata two, and an apparently normal fundus in one e, Dr. Souter discussed the pathological findings published cases in which reattached retinæ had ne to the microscope, special mention being made the cases of Rönne and Klainguti. In one of his es of retinitis striata—an idiopathic one—watched r 17 years, the long white band at the edge of the ttached area was crossed by vessels which were iously not retinal, and not likely to be choroidal, rather like new vessels. They had a strong emblance to, and offered a possible explanation of, se cases described by Sir William Lister in the *thalmic Review* for 1903 under the heading Angioid eaks of the Retina.

Dr. R. A. KERRY (Montreal) was convinced that rtain cases injection of iodide had been of immee and permanent value.

Mr. INGLIS POLLOCK (Glasgow) read the reports of cases of detached retina in which recovery urred after operation. In the first case there was elapse, and although the patient had to wait six ths for readmission to the infirmary, the operai was successful in restoring the retina to its nal situation; that was seven years ago, since n there had been no recurrence. In the second case—a traumatic one in a myope of 9 dioptres—one operation sufficed, and the patient had had no recurrence since it was performed six months before. Both cases showed that there was no improvement until the inter-retinal fluid was withdrawn; in fact, both patients became worse while they lay at home with both eyes bandaged, and the first showed the success of the operation in spite of the recurrence of the detachment. Mr. Pollock further said that he had seen a small detachment cured by operation, followed by recurrence of the detachment and subsequent complete loss of sight in the eye by the extension of the detachment all over the fundus.

Sir ARNOLD LAWSON (London) told of spontaneous reattachment in two apparently hopeless cases. The first was that of a woman with changes in the fundus and vitreous, chronic colitis, and neurasthenia. A few months ago she acquired a very large shallow detachment of the retina below. She would not rest in bed—"it was like trying to keep a pea in a frying pan"—and was quite an unfit subject for an operation. Some time later she returned saying she had recovered her sight. The detachment had entirely gone, and so far there had been no signs of any recurrence. The other case was that of a lady of 70, very stout and plethoric, who had an enormous black "umbrella" detachment, due no doubt to hæmorrhage. She scoffed at the idea of remaining in bed. In reply to a question as to her other eye, she was told that it was in no special danger, but that she must be careful not to hustle or overexert herself in any way, and to avoid stooping. As the second eye was sound she determined to have no treatment. Some time later, anxious to meet her daughter at a station, she ran up the hill, arrived at the top all hot and breathless, and remarked to her daughter, "Good gracious, I can see!" The retina was found to be in position, and had remained so.

A short discussion followed, after which Sir ARNOLD LAWSON read a paper on the value of

Antiseptics in Modern Ophthalmic Surgery.

There were, he said, three obvious sources of infection in ophthalmic surgery. The first was from contamination of the conjunctival sac. The second was from instruments and dressings; and in this matter too much care could not be taken. The third was from the surgeon's fingers. In Sir Arnold Lawson's opinion gloves interfered so seriously with the sense of touch that they could not be used; but since the hands could never be made strictly sterile, great precautions must be taken to prevent contact with the business part of any instrument or suture. In the event of any such accident the immediate use of flavine (1 in 1000) was to be relied on as efficient and yet not irritant; it had, however, no power of penetration. He considered that it did not delay healing, even when used daily in a strength of 1 in 4000. It was useful, too, as well as protargol, when the lash region and the ciliary margins were not entirely healthy. He had great faith in hydrogen peroxide when it was necessary to take risks and operate in presence of a septic condition of the eye.

Dr. H. M. TRAQUAIR (Edinburgh) read a paper on the

Incidence of Tobacco Amblyopia in Edinburgh and District.

Cases of this condition, he said, had been found to be about 1 per cent. of the out-patient cases during a number of years. Four male and one female patients had contracted the disease from cigarette-smoking. By comparing the curve of frequency of tobacco amblyopia with that of arrests for drunkenness, he showed that there was no similarity in the incidence, and this made it very improbable that alcohol was in any degree the underlying cause, as was sometimes believed. Furthermore, the Edinburgh patients with tobacco amblyopia were almost entirely of the respectable working class. He related the cases of three persons who had become blind from drinking methylated spirit, in one of which a man of 40 actually drank a pint a day for four months

before symptoms came on. No case of tobacco amblyopia ever proceeded to complete blindness, and an interesting feature was that vision sometimes became worse for a time after smoking had stopped. There was very often some precipitating cause, whether physical or psychical; and though the amblyopia was never unilateral, there were indications that one eye might be affected rather earlier and perhaps more deeply than the other.

Prof. VAN DER HOEVE stated that he never saw cases of tobacco amblyopia in Holland; he did not believe that it ever occurred, but he could not tell why.

Dr. DE SCHWEINITZ said that he himself had never seen a toxic amblyopia of this particular type in a drinker who was not a smoker, and only two cases in smokers who were absolutely teetotal.

Dr. F. H. DIGGLE (Manchester) read a paper, chiefly statistical, dealing with the relationship (or rather non-relationship) between nasal disease and lacrymal obstruction.

The PRESIDENT (Dr. SINCLAIR) performed before members of the Section his special operation of extraction of cataract in the capsule.

SECTION OF RADIOLOGY.

WEDNESDAY, JULY 20TH.

THIS Section met under the presidency of Dr. J. M. WOODBURN MORISON (Edinburgh) and the subject first discussed was

X RAYS IN THE DIAGNOSIS OF INTRATHORACIC GROWTH.

Dr. STANLEY MELVILLE (London) pointed out that in pre-radiological days there were but few publications dealing with intrathoracic neoplasms, and such as there were dealt with the matter only from the standpoint of morbid anatomy. Out of 74 cases reported in 1904 by Sehrt, in six only had a correct clinical diagnosis been made. Our forebears could go no further as regards the diagnosis than the symptom-complex of increased intrathoracic pressure. Intrathoracic new growths were believed to be very rare and the prognosis was considered hopeless.

It was customary to classify intrathoracic new growths as benign and malignant, but only in the pathological sense. Dr. Melville asked if this distinction could be drawn, for every intrathoracic new growth, however benign, must in time kill the patient by pressure. This fact must be appreciated by clinician and radiologist on account of the vital necessity of early diagnosis. Unfortunately, even true malignant neoplasms had an insidious onset and grew to a considerable size before causing dyspnœa from pressure. He considered that, on the first evidence of even occasional breathlessness which could not be accounted for, radiological examination was indicated.

Benign Neoplasms.

Benign neoplasms were for the most part extra-pulmonary.

Fibromata gave rise to rounded, well-defined opacities springing from the posterior thoracic wall and pushing forward the lung rather than invading it. Owing to the non-irritant structure of the growth there was seldom any pleural adhesion, and diagnosis was rendered easy by the production of an artificial pneumothorax. When this was done an isolated free tumour which was extra-pulmonary could be made out. This procedure was of great value in the differential diagnosis between fibroma and fibro-sarcoma.

Teratomata occurring in the thorax were generally of the dermoid type, of epiblastic origin, and containing any of the constituents of skin and its appendages. Growing from the third branchial cleft or the remains of the thymus, they were anterior in position in contra-distinction to the fibromata. Dr. Melville had seen as many as five dermoid cysts at the Brompton Hospital in the last 12 months. The most important point in the radiological diagnosis was the examination in the dead lateral plane, when the tumour was seen to lie anteriorly close to the sternum, being fairly well-defined, but often markedly irregular.

Malignant Neoplasms.

Dr. Melville quoted statistics of pulmonary carcinoma from the year 1886 to the present day, and pointed out the apparent increase in the incidence of this disease in all countries. He questioned the real existence of primary sarcoma of the lung, as opposed to lympho-sarcoma arising from the mediastinal glands and, therefore, primarily mediastinal. Metastasis from some undiscovered primary focus, such as the prostate, might account for some of the recorded cases.

Finally, he discussed mediastinal new growths, laying stress on the difficulty of the differential diagnosis from aneurysm of the thoracic aorta. If the condition had persisted for 18 months or more aneurysm was the more probable. The diagnosis might depend on the occurrence of erosion of bony structures which seldom occurs in mediastinal sarcoma. He concluded his paper by inviting discussion on the question, Is the increase in the incidence of primary pulmonary carcinoma real, or is it possible that many of the cases now recognised as carcinoma were previously mistaken for pulmonary tuberculosis, especially of the fibroid type?

Discussion.

Dr. THURSTAN HOLLAND (Liverpool) said that he did not believe that the increase in the incidence of primary pulmonary carcinoma shown in the statistics was a real one. He attributed it to more accurate diagnosis. Discussing the differential diagnosis of mediastinal new growth and aortic aneurysm, he laid great stress on the observation of a definite expansile wave-like pulsation passing along the margin of the shadow; this appearance he regarded as pathognomonic of aneurysm.

Dr. A. E. BARCLAY (Manchester) thought the time had come when the text-books of clinical medicine should be revised in the light of radiological knowledge. As an example, he mentioned the physical sign known as tracheal tugging, which was so much stressed as a sign of aneurysm in the books. He had failed to elicit it in a large number of cases in which he had proved, by X ray examination, the presence of an aneurysm of the arch.

Sir HUMPHRY ROLLESTON (Cambridge) said that he regarded tracheal tugging as a sign which was of value.

Lord DAWSON OF PENN thought that the radiologist should take a greater part in the teaching of clinical medicine. He suggested that in cases in which the radiological examination was an important factor in the diagnosis, the radiologist might with advantage discuss it, and the conclusions to be drawn from it, before the students, immediately after the demonstration and discussion of the case by the teacher of clinical medicine.

The PRESIDENT then described the system of undergraduate instruction in radiology in force at Edinburgh University, and the discussion was continued by Dr. N. S. FINZI (London), Dr. CAMPBELL SUTTIE (Glasgow), Dr. ROWDEN (Leeds).

In his reply, Dr. MELVILLE said that he placed no reliance on the presence or absence of pulsation in the differential diagnosis of aneurysm. A tumour might show violent transmitted pulsation, while an aneurysm with thickened, calcareous walls might show none.

The second discussion of the Section was presided over by Dr. R. E. ROBERTS (Liverpool), the subject being

X RAYS AND RADIUM IN THE TREATMENT OF CARCINOMA OF THE BREAST.

Dr. N. S. FINZI (London) said that it was generally agreed that cancer started as a local disease, or at any rate a local manifestation. Generally it tended

ooner or later to spread, at first by the lymphatics nd later, in some cases, by the blood stream. If he disease was completely removed while still local, vhether by surgery or by irradiation, the patient vould be cured. If, however, it had spread beyond he area removed, or beyond the area to which a ufficiency of irradiation has been given, growth ecommenced. Consideration of the lymphatic lrainage of the breast showed that when the primary rowth was in the outer part of the breast further rouble might be expected first in the axillary and ubclavicular glands and later in the supraclavicular lands and posterior mediastinum. If the growth vas in the inner part of the breast, the inner end of he intercostal spaces and the anterior mediastinum vere the danger zones. If it was in the upper part f the breast the supraclavicular glands were to be uspected. In advanced cases the disease often nvaded the pleura, possibly by the sternal or inter-ostal glands, possibly by way of the mediastinum. he cells would eventually reach the blood stream y the thoracic duct. Involvement of the mediastinal, racheal, and bronchial glands might often be dis-overed by a skiagram, as also pleural metastasis and lood-disseminated metastases in the lungs. They ould not be seen in the early stage, being only visible hen in the form of definite tumours. Skiagrams, oth anterior and antero-lateral, should be taken of very breast carcinoma for X ray treatment.

Radium Rays and X Rays.

The low penetrating power of the α rays made hem of no importance in therapy. The same remark pplied in a large degree also to the β rays, much etter results having been obtained by γ and X rays. t was found that there was a certain minimal dose hich would inevitably prevent the development of xperimental growths. This was the so-called lethal ose, and would cause the growth to be absorbed by he tissues of an animal into which it was implanted, nd would then immunise the animal against future nplantation of similar growth. Larger doses would qually prevent the development of the graft, but ould not immunise to the same degree, and when bout 20 times the lethal dose had been given the raft no longer immunised. Sublethal doses reduced ne ratio of successful implantations without in every ase preventing them. The lethal dose was much igher than could be applied to the living tissues ithout causing necrosis. In the human being in eneral the more rapidly growing the neoplasm the ore rapidly would it succumb to irradiation. But s rapidly growing tumours spread more quickly, wider area and more distant glands would need to e treated, and a greater number of cases would ow distant metastasis. With rapidly growing mours the effect of the rays was seen quickly—1 a day or two—whereas with the more slowly rowing forms changes might not appear for some eeks. As the wave-length of X rays decreased o their effects took longer to appear.

The γ rays produced an effect in about the same me as X rays produced by 150 k.v. continuous rrent. Dr. Finzi believed that the response to rays of carcinomata and epitheliomata was better ne higher the wave-length, if full doses were given. onsequently γ rays were the best if applied in fficient quantity. Lymphosarcoma, however, prob-bly responded at least as well to medium wave-ngths. X rays could easily be obtained in large uantities; on the other hand, radium could con-eniently be applied for prolonged periods. In the re instances in which large quantities of radium ould be secured they were not concentrated into a oint focus, but spread over a large radiating surface o that the relative depth was much increased. Radium ys were more penetrating, and for the same amount f damage to healthy tissues, exerted more effect on arcinomata than X rays. The disadvantage was at the underlying lung must get a large dose and bsequent damage was likely. On the other hand, ith X rays the use of the glancing method would largely prevent this. Radium was also used by burying a number of radium containers in the tissues; usually hollow needles containing either radium salt or radon were employed. The needles were used deep to the growth if possible, or in its deeper layers, the gland areas being needled at the same time. Dr. Finzi had the impression that the results with buried radium were better than the external methods, provided the wounds remained aseptic. This could only be accomplished by meticulous care owing to the devitalising effect of the irradiation upon the tissues.

Treatment.

Dr. Finzi discussed the actual treatment of cases under the following headings, speaking first of treatment by irradiation alone.

(1) *Primary growth localised in breast; no palpable glands.*—In an operable case without contra-indications for surgery, irradiation should not be used unless the breast was to be subsequently removed, but the loss of time, possibly of two months, involved in preoperative irradiation was probably more than compensated for by the diminished likelihood of insemination of the growth at operation. In many cases it had been possible to render inoperable growths inactive for long periods by X rays, but their complete disappearance had been rare. The results with radium had been more encouraging.

(2) *Primary growth in breast; palpable glands in axilla.*—Treatment by irradiation largely depended on the radiographic appearances. If mediastinal involvement was seen, nothing but mediastinal treatment was of any value, and as this usually prevented efficient doses being given to the breast and axilla, the question of surgical help must be considered. If the mediastinum did not appear to be involved the breast should be treated as if operable, and the subclavicular and supraclavicular regions must be irradiated. If the mediastinum was subsequently found to be involved it could be treated with X rays.

(3) *Primary growths with supraclavicular deposits on the same side* must always be regarded as affecting the mediastinum, and unless mediastinal treatment could be adopted with correct dosage of the breast, axilla, and supraclavicular regions with X rays, no permanent success was possible. Combined radium and X ray treatment might be useful.

(4) *With definite mediastinal involvement.*—Until recently Dr. Finzi said he had regarded cases with definite mediastinal involvement as almost hopeless. Recently, however, several cases had done extraordinarily well. It was more than three years since his first case had been treated by his present technique and the patient was still well.

(5) *Treatment of distant metastases.*—Bone metastases were usually very painful and there might for a time be only one or two. Treatment gave so much relief that it could not be refused, even although it was certain that the patient would ultimately succumb to other metastases.

The general lines of treatment for local recurrence after operation were similar to those for a primary growth. With distant recurrence in the axilla and coracoid region and mediastinum, the treatment would be the same as when the primary growth was present. Distant metastases must be dealt with on their merits, but they were worth treating on account of the great relief from pain, lasting for many months, which could often be given.

With regard to post-operative prophylactic treatment, Dr. Finzi held that the methods used should be exactly the same as when there was a demonstrable recurrence and the doses should be just as full. The assumption was that some disease still remained and the most thorough methods should be used to eradicate it.

After-Effects of Irradiation.

Immediately after treatment some patients suffer from sickness which might be considerable; this could be much diminished or even abolished by certain precautions. Spreading of the treatment over several

days was effective and the good ventilation of and exclusion of all corona discharge from the treatment room was important. The administration of gr. x. of chloretone before the treatment, and three times a day during it, was also of use.

After describing the effects of excessive irradiation of the skin, Dr. Finzi explained that when effective doses were used on the chest wall it was difficult to prevent the lung from receiving large doses. Many such cases would later develop a characteristic lesion of the lungs. It did not occur in all cases unless the dose had been very large. The acute form produced by a large dose of irradiation within a few days showed itself first as a pneumonic patch in the lung; later the typical radiographic appearances of bronchiectasis developed, generally, however, without the symptoms of that condition. In the chronic form caused by irradiation at intervals over a long period, the changes were similar, except that the pneumonic stage was not observed. In the final stage the patient was usually unconscious of any abnormality, but in one acute case a typical bronchiectasis remained.

Technique and Results.

Technique was discussed with special reference to the glancing methods devised by Dr. Finzi and also by Holfelder of Frankfurt. Dr. Finzi said that he used continuous high-tension current at 170 to 185 k.v. Radium might be given by needling, or by external applications in which the radium is supported at a distance of some 3 cm. from the surface of the skin, tubes being distributed at intervals over moulds of special wax or a splint of thin celluloid or wood.

Discussing results, Dr. Finzi said that palliation and prolongation of life were the rule, cure the exception; but undoubtedly the radiologist ought to get the patient at an earlier stage than was the rule at present. The use of radium needling followed by extirpation, if desired, in earlier cases, seemed to offer a better chance of cure than operation with subsequent irradiation; but prophylactic irradiation was not to be withheld if operation was preferred.

Discussion.

Dr. DOUGLAS WEBSTER (London) said it was no longer true that the only chance for the patient with cancer of the breast was early operation. Some radiologists had now had results similar to those of irradiation treatment of cancer of the cervix—namely, cures in a certain percentage of inoperable cases, and results in operable cases equal to or better than those of operation. He thought the mortality from cancer was more likely to be lowered by an extension of radiological methods than by any other means known at present. Owing to the natural repugnance to operation felt by most patients, and their delay in admitting that they had a lump in the breast because they had no pain and feared that an operation would be forced on them, a large proportion of patients came first under observation at a late or too late stage. Patients would report earlier if they knew there was an alternative treatment to operation. Operation in a very considerable percentage of cases was incomplete, as nearly a third of the post-operative irradiation series had shown small early recurrences, most of which disappeared with further irradiation. A considerable number of rapidly recurring cases had been met with, which appeared to confirm clinically the experimental observation that the best way to make an animal tumour grow was to cut into it. Because of the deaths of so many of these recurrent patients preoperative irradiation was strongly advocated, to sterilise the tumour and its lymphatic drainage areas before operation. The surgery of cancer in this sense was in a pre-Listerian stage, because of the incalculable risk in any given case of dissemination of active tumour cells and local recurrences. Dr. Webster gave statistics from 512 cases of breast cancer treated by X rays and radium, showing the proportion of successes and failures met with in recurrent, prophylactic (post-operative), and primary cases treated. In his view in breast cancer, as already in rodent ulcer and in cancer of the cervix and tongue, irradiation was tending to become the primary, and surgery the secondary, method of treatment.

Dr. M. R. J. HAYES (Dublin) then described his results, exhibiting large diagrams showing the result of treatment of carcinomata at various stages.

Dr. A. E. BARCLAY (Manchester) doubted whether the results of X ray treatment with the high voltage now available were in any degree better than were obtained years ago with what was termed medium voltage therapy.

Dr. R. E. ROBERTS took a gloomy view of the results of the X ray treatment of breast carcinomata.

The PRESIDENT asked of those irradiating any malignant growth the question—What exactly are you hoping to do to the tumour? If it was hoped for complete destruction of all the malignant cells that was a physical impossibility. He could show a section of a heavily irradiated malignant growth in which, side by side with cells so completely destroyed as to show calcification, were others which were still actively growing.

SECTION OF MENTAL DISEASES.

WEDNESDAY, JULY 20TH.

WE have already reported (THE LANCET, August 6th p. 277) a meeting of this Section held in conjunction with the Royal Medico-Psychological Association. Another joint meeting with the Association was held on July 20th, under the presidency of Dr. HAMILTON MARR, when the subject of discussion was

CHRONIC SEPSIS AS A CAUSE OF MENTAL DISORDERS.

Dr. WILLIAM HUNTER (London) said that the mental conditions chiefly aggravated or caused by sepsis were dementia præcox, manic-depressive insanity, paranoid conditions, psychoneuroses, and the toxic insanities. He had made a special appeal for the study of focal sepsis in 1900, and after 20 years a response had come in the energetic work of Dr. H. A. Cotton, of the New Jersey State Hospital, in 1923.[1] Since then more and more attention had been paid to the subject in this country.

Surgical sepsis was generally an obvious complication with easily recognisable lesions, caused by only two or three kinds of organism. Medical sepsis was much more complex. Its foci were small, hidden, and chronic, and generally caused no local effects. The organism responsible was usually a streptococcus, but this might be of any one of 16 strains differing not in their cultural features or reaction to sugars, but in their selective action on the different systems of the body. This fact had been dramatically shown by the work of Rosenow in 1914–16.

In 1916 Dr. Cotton had admitted into hospital a woman whose case was of definite historical interest. Her father had died of melancholia at 64, and on the death of her mother from paralysis at 80 she had become depressed, agitated, and self-accusatory. Her upper teeth were missing and her lower badly decayed. After two years 11 bad teeth were extracted, and two months afterwards she had permanently recovered. This case aroused his interest in sepsis as a causative factor in mental disease, and had marked the starting-point of his fruitful work in this field. It showed the usual ætiological factors; heredity and the psychogenetic factor of the mother's death, either of which might account for the condition. It had nevertheless been cured by the removal of the most uninteresting feature of the trouble. Her disorder was, in fact, a "septic psychosis." Dr. Hunter also recited another case, this time of acute mania simulating dementia præcox, which had yielded to the extraction of four impacted molars. The problem was whether to wait till the symptoms abated, or to operate while the patient was still violent. Each case must be judged on its merits, but the risk of operating was one which could be safely run. Impacted and

[1] Journal of Mental Science, October, 1923.

nerupted teeth were frequently associated with ıental disorder; in 120 patients of Kopeloff and his olleagues, reported on in 1923, 15 had 49 such teeth. n Dr. Hunter's judgment the dental history and egree of sepsis found in the cases he had quoted were ommon to most of the cases of severe mental disorder ı children and adolescents.

The commonest form of psychosis was the "septic" sychosis; sometimes it existed alone, but it was more ften a complication of other and severer conditions, nd the best hope that any psychotic patient could ave was that his trouble might prove to be largely r entirely due to the influence of a septic focus. In r. Cotton's experience the teeth of all patients, hatever their sex or the nature of their psychosis, ere infected. The stomach was a septic focus in 83 per ent. of men, the tonsils in 76 per cent., and the minal vesicles in 2 per cent. In 10 per cent. there ere serious lesions of the colon. Of women 73 per cent. ad septic tonsils, 76 per cent. a septic stomach, 0 per cent. a septic cervix, and 30 per cent. serious olonic lesions. The observations of Dr. T. C. Graves ad given similar results. His figures for teeth and onsils were lower than those of Dr. Cotton, but his gures for the cervix corroborated the American ones, nd he reported a high incidence (39 per cent.) of ear psis and a 10 per cent. incidence of nasal sinusitis. he relative importance of the various foci, said Dr. Iunter, depended not on the respective incidence in iem of sepsis, but on its virulence, amount, and aronicity. The important factor in oral sepsis was ıe number of sockets, rather than the number of eth, affected. Its degree depended also on other onditions, such as septic gingivitis, tartar deposit, yorrhœa, the number of devitalised and crowned eth, buried roots, unerupted teeth, &c. Gold bridges ere an important source of sepsis, of a kind particuırly liable to produce neurotoxic effects. Teeth arboured much more infection than tonsils ever ould, especially since bony tissue was involved. This ıst factor explained the virulence of nose and ear ıfections. Dr. Hunter welcomed a new era in sychiatry, in which the first measure of treatment ıould be the removal of all septic foci with the help f the surgeon and radiographer; when every mental ospital should be as well equipped and staffed for ental and surgical work as it was now for medical ork. He expected the greatest triumphs of this new pplication of antisepsis, however, in the realm of revention.

Discussion.

Sir BERKELEY MOYNIHAN (Leeds) spoke of the elation of septic foci to gastric and duodenal ulcers. ardiac conditions, he said, could be much improved y the treatment of gall-bladder lesions in particular, nd all had a septic origin except congenital heart isease. If operation on distant organs could benefit ıe heart it could also benefit the mind. He had perated on mental patients for gall-bladder, in the ıce of opposition from physicians and relatives, with onsiderable success for 30 years. The progress of ırgical knowledge of the abdominal viscera was ampered by the lethargy of physiologists, who would o well to bring their researches more closely into line ith clinical requirements. It was a mistake to ithhold surgical aid on account of the severity of the ıental state; as the speaker put it, he never let a atient die of one disease because he happened to ave another as well. He wanted to know why some atients with septic mouths withstood infection hile others fell easy victims. The question must be ound up with the problem of immunity, about which ıe greatest authorities knew practically nothing. Sir erkeley Moynihan hailed the recognition of the edical effects of sepsis as the most illuminating iscovery of the century.

Dr. CHALMERS WATSON (Edinburgh) said that in ıvestigating for sepsis it was essential to study the rine. The condition of the stool was another valuable ource of information. Nearly every case of mental isorder, migraine, and the troubles of everyday life, as associated with some septic discharge from the bowel. This could easily be proved by a double Plombières douche, for whereas the second injection into a healthy bowel came back almost perfectly clean, from a toxic bowel it was returned nearly as turbid as the first. This result, obtainable from 99 out of 100 patients in a general or mental hospital, gave clear proof of a severe disturbance of the balance between the saprophytic growths and the forces which kept them within bounds. Cleansing of the colon was therefore an important therapeutic measure.

Dr. H. A. COTTON (New Jersey, U.S.A.) said that every mental patient was sick physically, though he might have a deceptively healthy appearance. He recalled good results from non-protein irritant therapy, in the use of which, however, Birmingham had surpassed anything he had seen. A method had recently been adopted in America which fulfilled Dr. Watson's suggestion of cleansing the colon. It gave excellent results, but needed a conscientious nurse to operate it; it was a Plombières douche prolonged to an hour and a half or two hours, using about twenty gallons of water, and was given before abdominal operation. Dr. Cotton considered that American work on the colon was more highly developed than anything else in this branch of medicine. He laid stress, however, on the importance of clearing up all the primary foci as well. The "overload" factor was too often forgotten. When a focus was removed, the overload causing the more obvious symptoms was relieved and the patient improved, but that did not mean that he was yet free from severe handicap. Other foci must be looked for, or the trouble might return. In support of Dr. Hunter's concept of the "septic psychosis," he remarked that many people might have sepsis and avoid insanity, just as many people might drink to excess and remain sane; there was, none the less, alcoholic insanity. Though he was enthusiastic about irrigation, he advocated picking and choosing, and believed in any method that produced results.

Dr. T. C. GRAVES (Birmingham) referred to Bruce's "Studies in Clinical Psychiatry," published 21 years ago, in which appeared the fundamental conception that the real disease lay deeper than the chronic toxæmia, and was rather a failure to form antibodies. He described a typical case, cured by non-specific protein therapy and by surgical treatment.

The patient was a single woman, born in 1906 when mother was aged 44, and the youngest of five. The mother, though never certified, had had three nervous breakdowns and suffered from gross oral sepsis. Three other children had chronic nasal disease. At 3 years old patient had scarlatina with left otitis media; the discharge continued till she was 8 and there was recurrence in her teens. She was clever at school, reserved, good at music, and possessed initiative and thought for others. She was never alert, however, and delayed in answering questions. Menstruation occurred once each at 16, 17, 18, and 18¼. At last age the aural discharge became profuse and made her leave work. After mastoid operation next year periods became regular, 4/28. Patient at this time became depressed and developed ideas of persecution. Auditory hallucinations developed, and she was certified in July, 1926. On admission she showed complete disorientation and was noisy, mischievous, and violent. She manifested catatonia and waxy flexibility. These symptoms coincided with the pre-menstrual phase. The skin showed chronic papular staphylococcal eruption. There was discharge from left ear; the tonsils were small and septic; there was pus in right nose, mucopurulent discharge from endocervix. A carious tooth was extracted.

Eight intravenous injections of T.A.B. vaccine were given at five-day intervals during August. No immediate mental improvement followed, but the patient ceased to lose weight. The permeability of the choroid plexus was 3·64, lower than normal. In September she became more composed, though depressed—a reversion to an earlier mental phase. In October an acute exacerbation of the skin eruption followed a general sinus irrigation. The cervix was treated, and in November the tonsils were removed and the sinuses again washed out. By end of December the skin eruption had cleared up, patient had gained a stone, and showed interest in music. The permeability quotient was normal at 3·02. A second course of protein therapy and ultra-violet light was given in January. In February both antra were drained and ear discharge diminished. Definite physical and mental improvement followed, and she was discharged recovered in the summer—better than she had ever been.

This case, said Dr. Graves, showed the law of anticipation in heredity. He suggested that psychotic heredity might be made up of a number of components, in this instance possibly transmitted familial infection. The case also illustrated the serious effect of sinus disease on the reproductive function.

Dr. D. K. HENDERSON (Glasgow) said that Kopeloff and Kirby had divided 120 cases of mental disorder into two groups, one of which was treated surgically while the other was left alone. The percentage recovery-rates for manic depressives and cases of dementia præcox showed no advantage for surgical treatment. Dr. Hunter had judged from one case, which was an example of involutional agitated depression which should never have been sent to the chronic ward. The prognosis was good from the first, and the case had followed a normal course. The term "septic psychosis" was quite unnecessary, and it was dangerous to say that because something existed in a given mental case, then that something was the specific agent. Mental patients had been studied in connexion with the various branches of medicine and surgery for some years, but the recovery-rate had not been materially improved. Mental disorder was a much more complex matter than the discussion had shown. A fair amount of mental illness, indeed, followed the very therapeutic surgical measures which were advocated.

Dr. W. F. MENZIES (Staffordshire) said that the presence of sepsis in mental cases had long been recognised, but in perhaps 300 times as many cases sepsis existed without producing mental disorder. Thus as a causative agent it appeared to be only secondary. It had been shown that the normal and mentally disordered subjects reacted in much the same way to tests of basal metabolism, blood picture, blood-sugar, hepatic and renal efficiency, blood pressure, oxygen absorption, and sensitiveness of the thyroid, pituitary and adrenal glands. Signs of chronic intestinal toxæmia were the same in the sane as in the insane. Vaccines had proved very disappointing and erratic in their results. The problem of the offending organism cried out for team-work on a national scale. The toxic agent might be a product of bacterial katabolism or of the hydrolysis of amino-bodies in food; it exercised its effects as an irritant to the afferent visceral neurons and endocrines, and as a blood infection. There were many ill-known visceral reflex arcs from and to the whole splanchnic area, biologically developed for defence. Any increased splanchnic irritation, as in intestinal toxæmia, would enter the field of consciousness as one of the many vague expressions of "feeling ill"—e.g., headache, giddiness, nausea, and depression. The problem must be studied from the simplest forms of mental disorder, such as acute mania and simple melancholia, which were more nearly allied to primitive emotional phenomena than the complex mental states of paranoia, schizophrenia, epilepsy and obsession. The hopefulness of advanced phthisis and the depression and irritability of bacterial toxæmia were the analogues of mania and melancholia, and many other examples could be cited. They showed that there was normally a stream of reflex currents passing through the basal ganglia and brain-stem which, if amplified, were presented to consciousness as dysphoria provided that they could be freely corticalised. If, however, the connexions with higher centres were interrupted in any way, dysphoria could not arise. Rigidity, as in destructive lesions of the neothalamus or lentiform nucleus, was always associated with euphoria. Pathological euphoria was the expression of the increased blood-flow due to the irritation of a moderate amount of toxins circulating in the cerebral vessels. Perhaps increased permeability of the cerebral reticulo-endothelial system admitted toxins which confused the cortical association paths. Physicians and surgeons missed a great chance of helping psychiatrists when they omitted to describe their patients' emotional subjective tones.

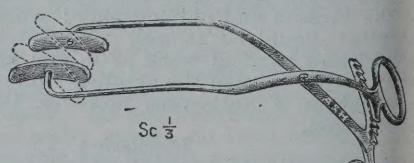
Mr. WATSON-WILLIAMS (Bristol) complained that otologists saw only selected mental cases who had ear trouble. Quite apart from mental hospital practice, however, the otologist saw many of the milder mental disturbances associated with infection in the nose and ear. It was always a problem to decide which neuroses were caused by the infection, and which cases were suitable for surgical treatment. It was almost possible to formulate so distinctive a clinical picture of the mental state which accompanied nasal accessory sinus disease, that this condition could be suspected when physical manifestations were lacking. The patient, when tactfully questioned, would confess lack of power to concentrate, a tendency to worry over trifles, and inability to make a decision. It was because patients could not decide to submit to operation that the surgeon had opportunities of seeing the stages of their mental degeneration. When mentality was restored abruptly by the removal of a septic focus it was impossible not to admit some causal connexion between the physical and mental states. Describing several cases, he remarked that it was the people without much pus who were most liable to mental disturbance.

Dr. W. A. POTTS (Birmingham) suggested an answer to the question why some victims of toxæmia developed mental symptoms and some did not. In those who manifested mental disorder the condition had generally been longer established, and more pathogenic factors were operating. Extraordinary results would be obtained if septic foci were treated early instead of after they had produced dangerous symptoms. The psychogenetic factor also called for prompt treatment, before the patient became inaccessible.

New Inventions.

TONSILLAR FOSSA PRESSURE FORCEPS.

THE instrument shown in the illustration is a modification of the Courtney-Yorke pattern, but differing in a few important details. It has curved instead of straight handles, and ends which are kidney-shaped and movable, to allow of more accurate adjustment to, and hence compression of, the tonsillar fossa. It can be applied to either tonsil and can also be used in the reverse position. The instrument has, however, been specially designed for use in conjunction with the hæmostatic tonsillar clamp, since it does not interfere when left in position on the one tonsillar fossa with the application of the hæmostatic clamp to the other tonsil and the subsequent dissection of the latter.



Messrs. Allen and Hanburys Ltd. are the manufacturers.

L. GRAHAM BROWN, M.D. Oxf., F.R.C.S. Eng.

ST. GEORGE'S HOSPITAL.—In spite of economy at this hospital the excess of expenditure over income last year was £9462, the cost of maintenance being nearly double what it was in 1913. Unless an additional sum of £20,000 a year can be assured the time must come when it will be necessary greatly to curtail the work undertaken.

PROPOSED BURNING OF AN OLD HOSPITAL.—During the outbreak of small-pox which occurred about 25 years ago the Edmonton Urban Council used a wooden building as an isolation hospital. Having no further use for the building, which comprises some 50 tons of material, the public health committee have advised that it should be burnt, rather than dismantled. If the wood were sold it might cause "an outbreak of small-pox or, at any rate, a public panic." The district medical officer's opinion is that there would be no risk of infection.

Reviews and Notices of Books.

OUTLINES OF DENTAL SCIENCE.

Vol. I. *Dental Anæsthesia.* By G. F. RAWDON SMITH, M.D., Lecturer on Dental Anæsthetics, University of Liverpool. Pp. 160.

Vol. II. *Dental Bacteriology.* By R. A. BRODERICK, M.B., L.D.S., Lecturer in Bacteriology to Dental Students, Birmingham University; Dental Surgeon to the Children's Hospital, Birmingham. Pp. 144.

Vol. III. *Dental Materia Medica.* By PROSPER H. MARSDEN, M.Sc., Ph.C., F.C.S., Lecturer in Materia Medica and Pharmacy, University of Liverpool. Pp. 155.

Vol. IV. *Dental Prosthetics.* By J. D. LOGAN, L.D.S., Lecturer on Dental Mechanics, Edinburgh Dental Hospital. Pp. 218.

Vol. V. *Dental Radiography.* By C. A. CLARK, L.D.S., Consulting Radiologist to the Royal Dental Hospital. Pp. 98. Edinburgh: E. and S. Livingstone. 1926. 7*s.* 6*d.* per volume.

THIS series of volumes when completed is intended to cover the whole range of dental science. Seven further volumes are promised, so that the series will eventually cover 12 volumes of about 150 pages each. This country has lagged so far behind others in the production of dental literature that any effort to provide a comprehensive account of dentistry deserves welcome. These volumes contain much that is of interest but are not all of equal merit.

The first volume, on *Dental Anæsthesia* by Dr. Rawdon Smith, is written with a genuine understanding of the needs of the dental student and practitioner by one who has had an extensive experience of dental anæsthetics. It is clearly written and covers the ground ably. The account of the administration of nitrous oxide is particularly good. The section on the administration of gas by the nasal method might have been fuller with advantage, since an increasing number of dentists give gas themselves by this nasal method. The statement that there are no bad after-effects is not always correct. The prolonged use of nasal gas, in the opinion of many anæsthetists, puts a severe strain on the right heart and many patients take a considerable time to recover. It is an extremely useful method but should not be abused by attempting to induce a lengthy anæsthesia which is more safely gained by ether, and a word of warning to this effect might have been included. Among the contra-indications of gas, affections of the thyroid gland should have found a place. We are glad to see that the author favours the use of ethyl chloride as an anæsthetic, especially for children. He states that an anæsthesia of from 60 to 70 seconds can be obtained. In our experience it is quite easy to get an anæsthesia of nearly two minutes in the case of children without running any risk of overdose. Ether, chloroform, and the various mixtures and sequences of anæsthetics are dealt with briefly but adequately. A chapter on local analgesia is included, presumably for the sake of completeness; it is doubtful, however, if this important branch of dental anæsthesia, which is entirely in the hands of dentists rather than anæsthetists, is appropriately treated in a book of this kind. The few pages devoted to local analgesia are of no value to the student and might have been omitted. It is stated that modern dentistry should be made painless, and the suggestion is made that cavity preparation can be carried out without pain by anæsthetising the pulp through a layer of healthy dentine by means of a special syringe. Practising dentists know, however, that this method has long been abandoned as useless, and, indeed, is a cause of pain. The last chapter on the medico-legal aspects of anæsthesia is a useful summary of the legal status of anæsthesia. While this book does not compete with the larger text-books devoted to anæsthetics in dental surgery, it is a useful and practical presentation of the subject which the dental practitioner should find helpful.

The volume on *Dental Bacteriology* by Mr. Broderick follows the usual lines. It contains a certain amount of abbreviated general bacteriology, the space being devoted specially to the flora of the mouth. From the examination point of view it may be useful, but we are sceptical whether the reader will gain from it any clear idea of what infection and immunity really signify. Toxins, immunity, opsonic index, vaccine treatment, and anaphylaxis are discussed in a chapter on bacterial products and results and cover just 16 pages. Even more inadequate are the two pages describing the Wassermann reaction.

Dental Materia Medica, by Mr. Marsden, is a useful compendium of drugs which have been or still are used in dentistry. The author might with advantage have devoted more space to discussion of the pharmacological action of drugs where the student really ought to know it. Many of the preparations described are practically obsolete or of doubtful value. Gelsemium as a remedy for neuralgia is mentioned and an appropriate prescription given. It is stated that untoward symptoms may arise, but no hints are given to enable the dental student to recognise them. In the chapter on hæmostatics the author states that ferric chloride is a "somewhat objectionable hæmostatic, as it is deleterious to the teeth and has a strongly acid reaction. It may be looked upon as a last resort." Modern teaching is that the use of ferric chloride to stop hæmorrhage after tooth extraction is quite unjustifiable. It causes severe sloughing and may lead to secondary hæmorrhage. In Conditt's (not Condett, as stated in the book) method of using silver in root canals the preparation used is not silver nitrate as stated, but an unstable compound of silver and ammonia from which metallic silver is readily precipitated by the use of a reducing agent. The method of its preparation might well have found a place. A useful drug not mentioned is chromic acid, which in 5 per cent. strength is widely used in the treatment of acute ulcerative gingivitis.

The volume on *Dental Prosthetics*, by Mr. Logan, is a practical manual of workshop mechanics. The author evidently has a daily familiarity with all that he describes. His standpoint is an individual one and not every practitioner will agree with all that he has to say. His book is stimulating and useful; it is longer than the other volumes of the series, yet even 200 pages is small compass for so large a subject. Some of the sections are too brief to be of much value, but on the whole Mr. Logan has performed his task with much skill and has written a really practical and useful manual.

The last volume of the series, on *Dental Radiography*, is the shortest and one of the best. Mr. Clark was the pioneer of dental radiography in this country and its evolution to a high state of efficiency owes much to his skill and enthusiasm. He has produced an excellent book which should find a wide welcome. An increasing number of dentists take their own radiograms, and though they can hardly hope to equal the technical excellence of such an expert as Mr. Clark, there is no reason why they should not produce photographs adequate for most purposes. It is highly desirable that every dentist using an X ray apparatus should have a working knowledge of electricity, for it is foolish to use such a powerful agent without knowing its possible dangers. Those who read this book carefully will learn much from it. The account of the installation, care, and uses of a radiographic apparatus is clear, concise, and practical. This is certainly the best book of the series. A special word of praise should, we think, be given to the reproductions of radiograms. They are among the best we have ever seen and reflect much credit on both the radiologist and the publishers.

THE OPERATIONS OF SURGERY.

Seventh edition. By R. P. ROWLANDS, O.B.E., M.S., F.R.C.S., Surgeon to Guy's Hospital, Lecturer on Surgery to the Medical School; and PHILIP TURNER, B.Sc., M.S., F.R.C.S., Surgeon to Guy's Hospital, Lecturer on Surgery to the Medical School. London: J. and A. Churchill. 1927. Vol. I., pp. 1046; Vol. II., pp. 896. £3 10*s.* each volume.

THIS book has long been established as a reliable guide to the operating surgeon, representing the best in current thought and practice. The seventh edition has been thoroughly revised and brought up to date. The operations described are for the most part those performed by the authors, both surgeons of large and illuminating experience, so that their remarks carry weight, and the descriptions of the difficulties which may be encountered and how they may be overcome are particularly helpful and practical. Here and there only are departures from generally accepted teaching, or small omissions. In the account of operations for empyema the reader will not find precise instructions how to deal with an interlobar collection of pus; in the decortication of lung operation the shock observed when the rigidly attached lung is suddenly freed is not emphasised. We cannot agree with the statement on page 792 of Vol. I. that it is difficult to obtain perfect analgesia by local methods for resection of ribs. As a rule, local anæsthesia can be brought about easily and effectively for these cases. In operations for necrosis of the long bones, an account of how to deal with those cavities at the upper end of the tibia, for instance, close to the articular cartilage would have been appreciated. Arthroplasty of the hip is scarcely more than mentioned, but the mature judgment of the authors may well regard it as an operation very rarely indicated. Whitman's operation for ununited fracture of the neck of the femur does not appear, though it is probably the best for this condition. It is interesting to note that the treatment for hallux valgus which the authors regard as giving the best results is not that usually performed.

In Vol. II. there is very little that calls for comment. It is full of good advice resulting from the mature judgment of experience and worthily maintains the tradition handed down by the original authors. The descriptions given of many rather unusual operations, such as that for ectopia vesicæ or the removal of a lingual goitre, will be particularly helpful when the occasions arise. We have not found an account of the useful extra-peritoneal approach to the lower ends of the ureters through a median incision, but this is one of very few omissions.

"Rowlands and Turner" is likely to keep its place as a popular guide for the novitiate surgeon, for whom, with its interesting accounts of actual cases, it is particularly adapted. Very seldom will he consult its pages without finding the very information and guidance that he seeks.

THE METHODS OF CLINICAL DIAGNOSIS.

By ALEXANDER GEORGE GIBSON, M.D., F.R.C.P., Honorary Physician to the Radcliffe Infirmary; and WILLIAM TREGONWELL COLLIER, M.D., M.R.C.P., Honorary Assistant Physician to the Radcliffe Infirmary. Illustrated. London: Edward Arnold and Co. 1927. Pp. 398. 12*s.* 6*d.*

THOUGH assisted more and more every year by scientific methods, diagnosis still remains to a very large extent an art. It is therefore a difficult subject to teach adequately in a book which can at the most indicate the main lines. This new volume does succeed in getting down to fundamentals, and in putting before the reader "the technique of examination, of what to look for and how to look for it." A good survey of the different regions of the body to be examined is followed by a more detailed description of the various systems, wherein sections on the interpretation of symptoms and physical signs are elucidated by a summary of the conditions found in certain diseases of each system. The student is encouraged to make inferences from the moment of his first glance at the patient, amplifying or modifying these as the history of the condition becomes clear and the physical examination proceeds. The section of the book devoted to the cardiovascular system is especially good; a short summary of the "criteria of a healthy heart" is a wise inclusion. It is satisfactory at last to find in print the statement (p. 83) "percussion is not an entirely reliable method for estimating the size of the heart." The section on the nervous system is very full, but seems a little out of proportion to the rest of the book, occupying as it does over 80 pages of the total. This section is also more difficult to follow, even allowing for the complexity of the subject. A small point calls for comment in connexion with the examination of the abdomen. On p. 63 the student is advised to press "deeply under the ribs" when feeling for the spleen. A soft, diffusely enlarged spleen may not be felt if too much pressure is used. It is generally better to let the spleen come down and touch the examiner's hand during inspiration than to press deeply. The book concludes with a well-chosen section on clinical pathology and an appendix containing useful tables.

THE HEART AND ITS DISEASES.

By CHARLES W. CHAPMAN, M.D., M.R.C.P. Edinburgh: E. and S. Livingstone. 1927. Pp. 216. 8*s.* 6*d.*

THE aim of this book is to provide for the busy practitioner a brief summary of the current teaching in cardiology. Its general arrangement follows the accustomed scheme. The opening chapters deal with the anatomy of the heart and its conducting tissues, and with symptoms and physical signs. Rheumatic, syphilitic and other types of heart disease are briefly reviewed, and special chapters are devoted to the consideration of marriage and anæsthesia in cardiac patients. Many similar small books on the heart have been published in recent years, and the present volume does not present any features likely to render it more popular than its predecessors. The illustrations, most of which are taken either from Cowan and Ritchie's or from Price's works, are good, but the text leaves much to be desired. For example: "In auricular disease characterised by marked dilatation and a state of over-excitability, incomplete attempts to contract the auricle (auricular fibrillation) occur." Such statements fail entirely to give a true picture of the condition described, and can only lead to confusion in the mind of the reader. One great fault in this as in many other small books is that the author attempts to deal with detail instead of being content with setting out general principles.

THE INVERT.

By ANOMALY. London: Baillière, Tindall and Cox. 1927. Pp. 160. 5*s.*

THIS little book brings forward for consideration, with a frankness that deserves a return, certain phases in the question of homosexuality because their explanation will be of real use to those who find themselves at a loss to provide practical advice for patients and penitents of confused sex—cases in which the coöperation of the doctor and the priest is often needed. An introduction by Dr. Thouless, Ph.D., lecturer in psychology at the University of Glasgow, should be read, as it clears the author's way excellently, and justifies the writing of the book on practical grounds. There is no reason to desire the continuance of an ignorance of the problems of inversion which precludes their receiving either instructed or charitable deliberation. A mean is possible between popular conversation—and no one wishes to see the subject debated in drawing-rooms—and the gutter publicity which such topics receive to-day; such a mean the author has succeeded in maintaining, and his counsel is given with real literary accomplishment.

MANUAL OF BACTERIOLOGY.

Eighth edition. By ROBERT MUIR, M.A., M.D., Sc.D., LL.D., F.R.S., Professor of Pathology, University of Glasgow; and the late JAMES RITCHIE, M.A., M.D., F.R.C.P. Edin., late Professor of Bacteriology, University of Edinburgh. Revised with the coöperation of CARL H. BROWNING, M.D., D.P.H., Professor of Bacteriology, University of Glasgow; and THOMAS J. MACKIE, M.D., D.P.H., Irvine Professor of Bacteriology, University of Edinburgh. London: Humphrey Milford, Oxford University Press. 1927. Pp. 821. 16*s*.

IT comes as something of a shock to realise that "Muir and Ritchie" with the appearance of the eighth edition celebrates its thirtieth birthday. With sadness we note that for the first time the hand of James Ritchie, who so long and so worthily shared the responsibility for its production, has played no active part in the preparation of the current volume. Prof. Muir has done well in his endeavour to fill the gap, by enlisting the coöperation of Prof. Browning and Prof. Mackie, so that as the book now stands it is wholly the product of the Glasgow school. There is one at least small but notable improvement on former editions. Throughout the period covered by our recollection the opening phrase of the first chapter of Muir and Ritchie has been "At the bottom of the scale of living things . . .," and we remember the dismal impression conveyed by this phrase and by the rest of the introductory chapter, of the awful dullness of bacteriology. Only active contact with the subject served to dispel that impression. The book has, indeed, been revolutionised by the disappearance of this initiation; the introductory chapter has been rewritten and has gained much thereby. Throughout the book, indeed, the revision has been adequate, while the size has not obviously increased. Some of the half-tone blocks show signs of wear, and the coloured illustrations are disadvantageously collected together at the beginning of the volume. Its price is worthy of note by the student, as comparing favourably with that of many American text-books.

"Muir and Ritchie" is what it has always been, sound, well-balanced, up to date, and a safe and accurate source of reference.

MONGOLISM.

Beitrage zur Kenntnis der Mongoloiden Missbildung. By Dr. W. M. VAN DER SCHEER. Berlin: S. Karger. 1927. Pp. 162. M.12.

Dr. van der Scheer's comprehensive monograph is based on a study of 348 cases of mongolian idiocy seen by him during his four years' tenure of an inspectorship of asylums in Holland. He deals first with the various theories that have been advanced to explain the occurrence of this abnormality. G. Shuttleworth's view is that the mongolian idiot is an exhaustion product and occurs as a result of conditions adversely affecting the maternal reproductive organs —e.g., advanced age, frequent childbearing, toxic influences, nervous depression, and alcoholism. Syphilis or tuberculosis may be contributory factors, but are not specific causes of mongolism. F. G. Crookshank, on the other hand, in a recent work takes the view that mongolism is an atavistic return to a more primitive type. As a result of a study of his series of cases, Dr. van der Scheer comes to the conclusion that the above views are incompatible with the facts observed by him. Comparing the histories of 79 mongols with 76 non-mongolian idiots, he finds that no greater importance can be attached to the state of the mother's general health when a mongol is produced than when the child exhibits any other form of weakmindedness. The main facts which emerge from his investigation are as follows: Very many mongols are the last born; many mothers of mongols are of advanced age at the time of birth of the mongol; in families with mongols, abortions and stillbirths are frequent; blood relationship of parents is of no importance; hereditary factors are of little importance; the father's age is of no importance. In 56 per cent. of Dr. van der Scheer's cases the mongol was the last born, and in 45 per cent. the mother's age was greater than 40 years; he confesses himself forced to the view that there exists a factor inhibiting normal childbirth, that this factor is as specific as the condition; he regards it as more likely to exist in the uterus than in the ovary. A very full account of the post-mortem appearances of a number of cases of mongolism is included. In the brain there is often found a hypoplasia of the infundibular region and hypophysis, the floor of the third ventricle and the interpeduncular region. In many cases mal-developments or absence of the ossa nasalis have also been observed. Dr. van der Scheer suggests that in these cases there is probably a developmental defect in the median plane of the skull, and he advances the theory that at a certain stage in embryonic development a too small amniotic sac prevents the normal extension of the fœtus. The head is thus compressed against the chest, and for a time the fœtus remains too strongly flexed. This theory would bring mongolism into line with other abnormalities of mechanical origin. The various findings which Dr. van der Scheer considers support this view are discussed in great detail in the text, which is well illustrated. An extensive bibliography of the literature of mongolism completes the monograph.

THE CARE OF THE FACE.

By OSCAR L. LEVIN, M.D., Chief of the Dermatological Clinic, Cornell University. London: William Heinemann, Ltd. 1927. Pp. 225. 6*s*.

IF the author's sources of information are reliable, no less than £29,000,000 are annually dissipated in America on "skin foods," "face-moulders," "unwrinklers," and a heterogeneous variety of cosmetic procedures. While we cannot compete with such stupendous figures in this country, evidence of the general prevalence of the cosmetic habit is not lacking, and it will be recalled that in a recent legal process it was stated that the institute concerned earned an average income of £600 per week. Dr. Levin's attempt to educate and rescue the willing victims of cosmetic chicanery is commendable. He has a wide knowledge of pathology and a racy style, usually absent in medical treatises, and if the ordinary layman can be prevailed upon to read it, particularly the lay woman, real good should follow. For the author has managed to compress an enormous amount of valuable information and what the average individual understands by "horse sense" into his book. There is an excellent chapter on quackery, in which the dangers of X rays for hypertrichosis, the evils of hair-dyes and depilatories, plastic surgery, paraffin injections, and a number of other cosmetic procedures and preparations are ably discussed and criticised. Hypertrichosis is again dealt with in another chapter, and again the treatment by X rays is condemned, and it is to such blemishes of presentation that the difficulty of reading the book is due. This duplication of material is a characteristic feature throughout and there is very little attempt at orderly arrangement, so that the impression is gathered that a number of lectures have been very roughly recast and thrown together without regard to sequence or classification. Even a medical man may find it difficult to thread his way through the tortuous channels of fact, theory, and invective, doubtless justified, with which the author has coloured his pages, and laymen will be more sorely tried. The type in the text is all of one size, little use is made of subheadings, and there is no index, its place being taken by a short glossary. The line drawings that illustrate points in the text might as well have been omitted; in a word, the format has not done much to lighten the author's very difficult task.

MOTHER INDIA.

By KATHARINE MAYO. London: Jonathan Cape. 1927. Pp. 391. 10*s.* 6*d.*

IN the first chapter the authoress, an American woman, states her object in writing this book.

"Leaving untouched the realms of religion, of politics, and of the arts," she writes, "I would confine my inquiry to such workaday ground as public health and its contributory factors. I would try to determine, for example, what situation would confront a public health official charged with the duty of stopping an epidemic of cholera or plague; what elements would work for or against a campaign against hookworm; or what forces would help or hinder a Government effort to lower infant mortality, to better living conditions, or to raise educational levels, supposing such work to be required."

The storm of controversy that has been raised by this book, and the diversity of the comments that have been passed upon it by critics of wide experience, bear testimony to the striking quality of the evidence which is presented and of the conclusions which are reached. There is here told a story of a struggle against forces of inertia and superstition which, by incurious residents in India, are only dimly apprehended. It is a story which it is impossible even to epitomise in this review. Suffice it that the account of the child-marriages, the obstetric practices, and the sanitary habits imposed by Hindu religion make it difficult to understand how more than a minority of women survive childbirth. And the treatment of animals which it sanctions is such as to harrow the medical no less than the lay reader. Miss Mayo imports into her style qualities of descriptive vividness, of irony, and of literary restraint which are well offset by the invariable documentary support which she gives to her statements. Her sojourn in India being short compared with that of many Englishwomen, she writes her book in the light of the recorded experiences of others no less than in that of her own experiences. Her statements are abundantly substantiated by references to written sources—to Government reports, to speeches made by Indians in Council or Legislative Assembly debates, to Mr. Gandhi's writings, to Indian medical journals and reports, and to numerous books written by Englishmen with long experience of India. Far from representing a superficial impression formed during a hasty tour, the book is based on a vast deal of reading, and covers a period which ends with the last months of 1926.

It is difficult to exaggerate the interest of this book. Medical interests are interwoven with ethnological, psychological, and historical material in a whole which is presented in language so well chosen as to make the book a masterpiece of descriptive writing. And it should bring especial pleasure to English readers. What has been said by Miss Mayo, an American woman viewing our administration from the outside, could never possibly have been said by an English author without incurring the charge of self-interested partiality. For throughout the book, implied on almost every page though never in so many words expressed, is to be found a tribute to our rule in India for which, in sincerity and tacit eloquence, it would be difficult anywhere to find an equal.

VENEREAL DISEASE.

Its Prevention, Symptoms, and Treatment. Third edition. By H. WANSEY BAYLY, *M.C.*, M.R.C.S., L.R.C.P., Hon. Secretary, Society for Prevention of Venereal Diseases; Medical Officer in Charge, V.D. Department, St. George's Hospital. London: Faber and Gwyer. 1927. Pp. 242. 10*s.* 6*d.*

Mr. Bayly's book in its third edition is divided into five sections; the first section, as might be expected from the author, is on the prevention of venereal disease. It is a robust statement of the possibilities and the efficacy of immediate self-disinfection in men. The second section on syphilis is good, and includes some useful pictures of sores and rashes. In this part of the book the requisite pathological tests are fully described. Mr. Bayly gives a "combined routine treatment course" for syphilis, occupying 106 days, modified for different individuals, which seems adequate. The treatment prescribed is both sound and modern. Gonorrhœa is fully dealt with in the third section, which contains no particularly new features. Some minor horrors frequently associated with venereal disease are discussed in the fourth section, and the fifth is devoted to description of arrangement of consulting-room and to case-taking, as well as to the more important questions of sterility, impotence, neurasthenia, and the problem of how soon after infection a man should be allowed to marry. On the last matter we wish to join issue with the author; in our opinion, even with expert modern treatment, a year from the date of infection with syphilis is too soon to allow a man to marry; the proviso that the man continue treatment after marriage may well be thought unnecessary by the patient, and the possibility of infecting a wife or child is one not lightly to be dismissed. Three coloured plates and 74 illustrations adorn the text, and the book as a whole can be recommended.

BACTERIAL VACCINES.

Their Position in Therapeutics. By LEONARD S. DUDGEON, C.M.G., C.B.E., F.R.C.P. Lond., Professor of Pathology, University of London, and Director of Pathology, St. Thomas's Hospital. London: Constable and Company. 1927. Pp. 87. 7*s.* 6*d.*

THIS is a short monograph based upon the wide personal experience of its author. Prof. Dudgeon expresses himself tersely and dogmatically; the fact that he writes of his own experience and views and presents these without much reference to the work of others makes for easy reading. The subject is set out in a sane and balanced manner and without any suggestion of misleading enthusiasms. Prof. Dudgeon acts the part of judge rather than advocate, and for this all interested in vaccine therapy should be grateful. There is not much in the book which calls for critical comment. We note that the author kills his vaccines by formalin; that he has found no superiority in sensitised vaccines; that he standardises his vaccines by an opacity method; that he has no doubts as to the superiority of the autogenous variety; and that he pronounces definitely against this form of therapeusis in acute infections. All of this is sound doctrine, and it is pleasant to find it clearly and authoritatively stated. Non-specific protein therapy, in common with all varieties of vaccine treatment which are irrational, such as haphazard streptococcal vaccine administration in pernicious anæmia, goitre, "intestinal toxæmia," and so forth, is roundly denounced. As a guide to what bacterial vaccines and allied substances are, when they are useful and when they are to be avoided, this little book is the best we have encountered.

TOPOGRAPHY OF THE SKELETON OF THE LARYNX.

Die Topographie des Kehlkopfgerüstes. By Dr. W. MINNIGERODE, Assistant Surgeon in the Second University Clinic for Throat, Nose, and Ear Diseases in Berlin. Munich: J. F. Bergmann. 1927. Pp. 25 + 17 plates of illustrations. M.18.

IN this anatomical study, for which he has utilised drawings left by the late Gustav Killian, Dr. Minnigerode has produced a useful and readable account of the relations of the framework of the larynx, the hyoid bone and laryngeal cartilages to the soft structures of the larynx, and especially to these parts seen in the laryngeal mirror. He has made use of dissections, frozen sections, and, in a few instances, of radiograms, and has provided an interesting text to accompany the 68 excellent drawings. The most practically useful are those on Plate XVI., which gives five drawings of the larynx as seen in the mirror, with the several cartilages distinguished by shading. A careful and thorough piece of work.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 17, 1927.

THE TREATMENT OF EPILEPSY.

ADVANCES in the treatment of epilepsy have recently been made in three directions. Empirical modifications in the metabolism of epileptics have been found to possess therapeutic value. The introduction of luminal and its sodium salt has provided a new pharmacological weapon, a discovery which has been contemporary with considerable additions to our knowledge of the mode of action of sedative drugs upon the nervous system. Lastly, an increasing recognition of the importance of a psychological approach to the problem of epilepsy, although perhaps this has been exaggerated in some quarters, has had a beneficial effect upon treatment. Recent attempts to treat epileptics by altering their metabolism date from 1921 when GEYELIN introduced fasting as a therapeutic measure. It was found that complete starvation for 10 or 12 days produced a marked improvement in the condition of epileptic patients. Acting on the assumption that the beneficial element in the starvation was the associated ketonæmia, WILDER, PETERMAN, and others attempted to obtain the same result by administering a diet sufficiently rich in fats and poor in carbohydrates to produce a marked ketosis. Such a ketogenic diet was found to be as efficacious as complete starvation, and has now been used widely enough for certain conclusions to be drawn as to its value. All available data are derived from the treatment of children only. The diet must be accurately planned to produce ketosis and at the same time to supply the needs of a growing child.[1 2] It has been found that unless the ratio of ketogenic to antiketogenic foods—that is, of fats to carbohydrates and proteins—exceeds 1·5 to 1·0 by weight, ketosis does not develop. The ratio required to effect improvement may be as high as 5 to 1, and a 3 to 1 ratio has in many cases been maintained for months. This involves both a great restriction of sugar and an unpalatably large consumption of fat, and thus the same difficulties are encountered as in the dietetic treatment of diabetes in children; an outbreak of fits in a child that was previously responding well to the treatment can usually be traced to clandestine sweet-eating. Different observers report a very similar proportion of cases benefited. TALBOT, METCALF, and MORIARTY state that 30 per cent. of the children treated became free from attacks, whilst HELMHOLZ reports a cessation of fits in 31 per cent., and states that 23 per cent. were improved to a less extent and 46 per cent. were unaffected. Since the children freed from attacks have been under observation for not more than two or three years, it is impossible to say whether the improvement is permanent, and a ketogenic diet cannot at present be regarded as in any sense a cure for epilepsy. It seems, however, to be worth a trial in selected cases where the coöperation of intelligent parents can be obtained, and especially when the child has failed to respond to treatment with the bromides and luminal.

The fact that a ketogenic diet benefits even a proportion of epileptics raises questions of great theoretical interest. It has not been proved that the therapeutic value of starvation and a diet rich in fats is due to the associated ketosis, and another explanation is suggested by recent investigations, which appear to have established the existence of a definite metabolic abnormality in epileptics. POPÉA and VICOL in 1925 noted in a small number of epileptic patients that the level of the blood cholesterol was abnormally low, and regarded this as a result of the convulsions. Dr. S. H. G. ROBINSON, Dr. RUSSELL BRAIN, and Dr. H. D. KAY, in a recent issue of THE LANCET,[3] published the results of their investigation of the blood cholesterol in over 100 epileptics and a similar number of controls. These workers confirmed the association of a low blood cholesterol with epilepsy and were able to show that the fall in the blood cholesterol was not the result of the fits, since it began some hours before a convulsion, which took place at or about the time when the level of cholesterol in the blood was lowest. KILLIAN and OSNATO have also observed a low blood cholesterol in epileptics, so that this phenomenon has now been noted by three independent groups of workers. Its significance, however, has still to be discovered, and is likely to remain obscure until there has been a considerable advance in our knowledge both of the physiology of cholesterol and of the metabolism of nervous tissue. ROBINSON, BRAIN, and KAY point out that cholesterol is an important constituent of nerve-cells and that the association of a low blood cholesterol with epilepsy receives support from clinical experience; for the level of this blood constituent is low at the menstrual period when convulsions are specially prone to occur in epileptic women, and an abnormally high blood cholesterol is found during starvation and in patients receiving a diet rich in fats. Here, perhaps, is an indication of the direction in which we should look for a possible rational basis for the therapeutic value of starvation and a ketogenic diet.

Dr. TYLOR FOX'S article on the use of luminal-sodium in the treatment of epilepsy, which we publish in this issue, should prove of practical value to all who have to treat epileptics, and also raises points of great interest to investigators. His results clearly demonstrate that epileptics acquire tolerance to the drug and that its withdrawal is followed by an increase in the number of fits, so that the patient may be actually worse than before treatment. These facts emphasise the need for caution in the use of luminal, and support the practice of keeping it in reserve until the bromides have been tried and found wanting. Dr. FOX found that in the majority of cases the mental state of his patients was greatly improved as a result of the reduction in the number of their fits which luminal effected. In a few cases, however, the patients became more asocial and violent than before, and administration of the drug had to be stopped. How are these diverse results to be explained? Some light is thrown upon this problem by recent advances in the pharmacology of sedative drugs. We are not here discussing in detail the possible causes of epilepsy, but it may be said that the most useful hypothesis as to the nature of the physiological disturbance in a convulsion is that it is a sudden and explosive discharge of neural energy. PAVLOV has shown that the pharmacological effect of the bromides is to strengthen the inhibitory processes of the cerebral cortex, and

[1] Talbot, F. B., Metcalf, K. M., and Moriarty, M. E.: Boston Med. and Surg. Jour., 1927, cxcvi., 89.
[2] Idem, Amer. Jour. Dis. Child., 1927, xxxiii., 218.
[3] Robinson, S. H. G., Brain, W. R., and Kay, H. D.: THE LANCET, August 13th, p. 325.

PICK has demonstrated that luminal acts in the same way. Both these drugs, therefore, produce by physico-chemical means a state of the cortical neurons which is the very reverse of activity or discharge, and this is presumably the source of their therapeutic value in epilepsy. The treated epileptic is saved from the usurious drain of his fits upon the energy of his nervous system, and can spend his neural income on higher activities whose nature depends upon his natural disposition. Dr. FOX points out that those patients whose character deteriorated as their fits diminished had a previous history of asocial behaviour. PAVLOV'S researches illuminate also the part which psychological factors may play in the precipitation of epileptic attacks; he was able to produce the symptoms of neurasthenia in dogs by overstraining their capacity for inhibition of conditioned reflexes. Such experiments suggest that in a potential epileptic a neurosis which taxes the patient's inhibitory powers may facilitate the epileptic discharge. Hence, psychological understanding plays a necessary part in the treatment of epilepsy. The patient must be saved from any avoidable mental stresses which may be associated with his domestic environment, and he must, if possible, be provided with a quiet occupation which calls for canalised and orderly neural processes. This in itself involves no small degree of training in inhibition, and in selected cases active psychotherapy has undoubted value. We have discussed pharmacological, metabolic, and psychological modes of treating epileptics; he will be the most successful therapist who realises that these methods are not mutually exclusive. Neither research nor treatment is likely to be useful if it does not envisage man as approachable on different levels of reality, and as being at the same time a collection of molecules, an integration of physiological processes, and a mind.

SLAUGHTERING AND SLAUGHTER-HOUSES.

Captain C. W. HUME'S interesting address to the Section of Agriculture of the British Association at Leeds will focus attention once more on the conditions of slaughter prevailing in this country. As he points out, the three criteria by which the present system of slaughtering must be judged are humanitarian, hygienic, and commercial. While any modification of slaughter-house construction or procedure may affect all three aspects of the question, it is particularly in relation to hygiene that medical opinion has a right to be heard. In this respect we must reluctantly admit that Captain HUME'S indictment of slaughtering conditions in this country is justified. With rare exceptions our principal towns have failed to provide public abattoirs which meet the requirements of modern hygiene, either as regards construction or facilities for meat inspection. It is the case, as Captain HUME says, that a large proportion of all the animals slaughtered is still dealt with in about 20,000 private slaughter-houses, most of which are primitive in construction, and afford no proper facilities for detection of disease either in living animals or their carcasses. The methods of handling the carcasses also leave much to be desired. Outbreaks of food poisoning, not infrequently traced to meat which has been free from the manifestations of disease on inspection, may quite well be due to contamination with intestinal contents, for carcasses are constantly exposed to this risk during the process of dressing. It may be, as Captain HUME suggests, that the blame rests principally with the National Federation of Meat Traders' Associations, but local authorities are not entirely guiltless. Even in areas where power has been obtained, ostensibly on public health grounds, to provide public abattoirs and prohibit private slaughtering, control has been placed in the hands of committees whose main object has too often come to be the reconciliation of traders' interests with public profit, rather than the protection of the community from disease. In most of our large public slaughter-houses the staff appointed for the purpose of veterinary and meat inspection is incomparably inferior in numbers to that of continental abattoirs, and the accommodation for those who are engaged in this work is not conducive to its proper accomplishment.

Captain HUME'S main thesis, however, is concerned with the practice of slaughtering. Here, it should be clearly understood, the prime consideration is humanitarian. The hygienist is drawn into the controversy only indirectly to support or refute subsidiary arguments brought forward by the protagonists of one or other point of view. It is possible that the keeping quality of meat is slightly affected by any additional excitement which animals may experience at the sight of blood, over and above the inevitable agitation attendant upon their being driven within enclosed spaces by strange hands. This effect must be accentuated if a method of killing is used which is uncertain, and may involve repeated violence before the animal becomes unconscious. It is likely, however, that the keeping quality of meat is also lessened by methods such as the pole-axe or the humane-killer, which delay bleeding and thus cause retention of a certain amount of blood and lymph in the muscular tissue. It appears, therefore, that there is need, from the hygienic standpoint, of a method which will entail the least excitement of the animals prior to slaughter, and will yet permit of prompt and complete bleeding. None of the supporters of the humane-killer has satisfactorily answered the arguments, based on scientific observation and experiment, which Dr. LEONARD HILL put forward in our columns in 1923 [1] in support of the Jewish system of slaughtering. This method requires, however, great skill and the maintenance of instruments in a perfect condition. As now practised, it also involves the violent preliminary of "casting" large animals, though a much less brutal method of getting them into position, devised by Mr. WEINBERG, of Manchester, is now on trial.

It is an undoubted fact that animals suffer needlessly at the hands of apprentice slaughterers, whether they practise with the knife, the pole-axe, or the humane-killer, more especially with the two first-mentioned implements; but in skilled hands none of them need cause suffering to anyone but the sympathetic onlooker. The mere act of killing, irrespective of method, is so repulsive to many of us that we should follow the road to vegetarianism travelled by THOREAU if we set out, as he did, to provide ourselves with food by our own unaided efforts, and it is significant that not a few of the advocates of the humane-killer are vegetarians. If the division of labour which is a part of civilisation enables the rest of us to evade this issue, it does not relieve us of the responsibility of ensuring that our food is procured without cruelty. The use of the humane-killer may not be the ideal method of slaughter, but the agitation on its behalf will have been worth while even if it only leads to greater humanity in the application of the older methods.

[1] THE LANCET, 1923, ii., 1382.

PERIODICAL MEDICAL EXAMINATIONS.

WE have received from the People's League of Health a detailed account of the deputation to the Minister of Health on June 28th last, with a list of those figuring on the deputation, proving its representative character. The deputation submitted a group of resolutions through Lord BURNHAM, under which the Government was asked to consider the effect of unemployment and unemployment insurance benefit on the health and habits of the nation, both from the psychological and physiological aspects; and the necessity for new regulations to prevent waste and shortage of perishable foods during the summer by the establishment of adequate cold storage. But the main object of the deputation was to impress upon the Minister of Health the need for instituting periodical medical and dental examinations for all persons benefiting under the National Insurance Acts. The proposal of the League was that every insured person, when accepted as a panel patient, should be medically examined by his doctor and the result recorded; such an examination applying also to dentistry when this additional benefit is available under the Acts in question. The representatives of the League anticipated the obvious criticism of this proposition by pointing out that it was an economical one, having regard to the results that would be obtained in productive efficiency. The deputation was introduced by Lord BURNHAM, who confined his remarks to the consideration of periodical medical and dental examinations, and asked, in the name of the League, that a departmental or inter-departmental committee should be appointed to consider the question. The speakers who followed included Colonel F. E. FREMANTLE, Prof. P. LELEAN, Sir ROBERT ARMSTRONG-JONES, Mr. LAMING EVANS, Prof. WINIFRED CULLIS, Dr. WILLIAM HUNTER, Mr. E. B. TURNER, Dr. C. S. MYERS, Mr. R. C. JEWESBURY, Mr. LEWIN PAYNE, Mr. R. LINDSAY, Dr. OTTO MAY, Dr. R. J. LLEWELLYN, Mr. C. J. BOND, and Dr. W. A. POTTS, and all, out of practical experience in varied departments of medicine, surgery, psychology, dentistry, and health administration, brought arguments to show that the absence of early treatment of pathological conditions was the common factor in maintaining the incidence of disease in the country.

In our correspondence columns this week will be found a letter from a group of doctors, which goes over ground that is in some ways the same. The signatories to the letter—the Advisory Committee of the Regular Medical Examination Association—plead with the insurance companies or any other organisation to improve the relations between individual citizens and the medical profession by facilitating a scheme for the regular medical examination of families. The Association is in touch with a scheme emanating from a body entitled the Family Medical Services Ltd., which is instituting an insurance policy to cover the financial risks incurred by families in respect of medical service, this being described as the one item of family expenditure which owing to its uncertainty cannot be satisfactorily provided for in any way save by an insurance scheme. The policy proposes to meet the financial embarrassment of heavy doctors' bills, and not to pay for occasional medical attendances in the case of minor complaints. The scales of premiums and benefits can be obtained from 20, York-street, Manchester, these being graded in accordance with whether it is intended to insure against the charges of general practitioners only or against the cost of operations, in which case there are, of course, additional charges. The promoters of the combined schemes, it will be seen, while not insisting like the People's League of Health in regarding periodical medical examinations as the surest way of promoting individual health, are advocating for private patients much the same preventive means as the League desires for panel patients. It may be that medical examination can be dispensed with in taking out a doctors' bills policy—such seems to be the intention; but if the scheme should meet with supporters, the result will be the calling for medical attention in many circumstances where this is not done. Only experience can say if this indirect method of detecting early disease can be put upon sound financial grounds, the added professional work being adequately remunerated.

Mr. CHAMBERLAIN, in reply to the People's League of Health, was unable to do more than express a benevolent wish that the ideals of the League might be successful. He was unable to consider the advisability of making periodical health examinations compulsory or of grafting such examinations, with any voluntary basis, on to the National Insurance Acts. Nor was he prepared to set up a committee to consider the whole matter, holding that the machinery would be too expensive, while incidentally he touched upon other difficulties which would confront those framing any legal measures to carry out the proposals of the League. The massed figures, as used by various speakers on the deputation and by the Minister of Health, followed the familiar pattern—that is to say, it was shown that if so many men lost so many hours a day through invalidism, the aggregate loss to the country was colossal; and it was also shown that the examinations of so many patients on so many occasions over such and such periods would take up a colossal amount of time. On both sides the arithmetic has remained unchallenged, and displayed the difficulty of the issues. The view of the Minister clearly was that the cost to the country of periodical examinations was, at the present time, too great to be contemplated, while he may be inferred to have held that the economical gain following upon higher standards of general health could not be made a certainty unless compulsory examinations were instituted. This measure he thought would be impossible for adults, though feasible and successful in the early years of life.

UNIVERSITY OF LEEDS.—Sir Edward Allen Brotherton, of Leeds, has given £100,000 to the University for the provision of a Brotherton library.

LONDON MEDICAL EXHIBITION.—At the Central Hall, Westminster, daily, from Monday, Oct. 3rd, till Friday, Oct. 7th, between the hours of noon and 6.30 P.M., the London Medical Exhibition will be open to members of the medical profession. This annual display of the latest adaptations of research to medical and surgical treatment is always attended by a large proportion of medical practitioners both from at home and abroad, and this year there are indications that the exhibition will be the largest which has been held since 1905, the year of inception. Every effort is to be made to minister to the convenience of those who visit the exhibition, and a spacious tea room and a reception room have been provided. Those who have not yet received their cards of admission can obtain them on application to the Secretary, London Medical Exhibition, 194–200, Bishopsgate, London, E.C., or at the Central Hall during the exhibition week.

Annotations.

"Ne quid nimis."

THE LANGUAGE OF SCIENCE.

THE recent meeting of the British Association at Leeds has once again been the occasion for various complaints in the lay press about the obscurity of the language used by scientific men when they expound the results of their thoughts, observations, and experiments. It is perhaps natural that those who have to make the path straight for the public should lay stress on the efficacy of words, but, plainly enough, human thought is always a little in advance of human language, and any thought which is progressive must constantly be devising new words and reorganising and rearranging those already available. It would perhaps be better if old words were left alone; a good many difficulties arise from attempts to delimit and define words in common use for some special technical purpose. Such has, however, been the usual practice, and brand-new words, such as "gas" are exceedingly rare; scientific terminology has evolved and not been specially created. However, whatever its origin, it is, of course, unintelligible to an untrained audience. Such must needs be, for it is a shorthand so indispensable that within each scientific topic the intimates have generally developed a kind of super-shorthand, which is not always easy to distinguish from slang. It is hardly possible to contemplate doing without "anaphylaxis"; the professor of English literature in the University of Cambridge has a particular abhorence of "antibody"; what would he say of "immune serum" if he knew about it? In the great majority of instances there is no difficulty in making scientific work intelligible to a lay audience which is willing to be attentive for a sufficient number of hours. The troubles are that the time occupied would certainly be desperately long if every technical word had to be treated by periphrasis, and that a great many of the topics arising at a meeting such as that of the British Association would be of no interest whatever to an average gathering of citizens. The public is beginning to believe that natural knowledge is of real importance and is anxious to know what is going on. Their desires are being met to a considerable degree and much admirable work is being done in making the results of scientific research available to the mildest curiosity; some first-rate examples have issued in recent years from the lectures at the Royal Institution, and it is difficult to avoid reading recipes for health which at any rate purport to be in line with the very latest discoveries in medicine. So much indeed is being done in this way that we do not believe there is any reason why the technical austerity of the language of the British Association should be in any degree tempered. That historic assembly is a meeting of scientific men who want to talk and sometimes to listen to one another; it does for them by way of a personal gathering what *Nature* does for them by way of a periodical.

SPA TREATMENT OF RHEUMATIC HEART DISEASE IN CHILDREN.

OF late years various attempts have been made abroad to treat cardiac rheumatism in children by hydrological methods after the acute signs have subsided. E. Feer,[1] of Zurich, recommends a mild Nauheim cure in after-treatment, and considers that even when compensation is beginning to fail it may be useful to give CO_2 baths at home, or at Nauheim or some similar spa, in conjunction with prolonged rest. Piatot,[2] again, has reported encouraging results from the use of effervescent baths, subthermal rainbaths, and subaqueous douches in recent cases of rheumatic endocarditis in young subjects, and considers that "cases should be submitted to treatment of this kind three to six months after the onset of the rheumatism, even if the joints are still painful." It is interesting, therefore, to find that physical treatment of the condition is being used as a routine at the Auguste-Viktoria Kinderheilanstalt at Bad Oeynhausen in Westphalia. This home has 220 beds for children of 4 to 14 years of age who are recommended for admission by the medical officers of neighbouring municipalities, which pay the whole or part of the cost of treatment. Though the patients are chiefly rheumatic, there are also anæmic and pre-tuberculous children. A special house of 25 beds has been set aside for cardiac cases, of which the majority are, of course, rheumatic. After a preliminary period of observation lasting three days, during which these children are kept in bed and the pulse, temperature, and blood pressure are recorded, as well as their exercise-tolerance in response to a standard test, the patients are treated by baths, under very careful supervision. The first two or three baths are of 2 per cent. saline or 3 per cent. for the older and stronger children, and are given at a temperature of 93° F.; the first lasts from 6 to 10 minutes and the subsequent ones last for from 12 to 15. Usually three baths a week are given. Unless symptoms such as dyspnœa develop the children are later allowed to go on to CO_2 effervescent baths, which are given at 90° F., and also last for 12 to 15 minutes. The baths are taken at 7 A.M. after a light breakfast, and the children rest in bed for two hours afterwards; in addition, they have two hours rest daily in the open air under a shelter. No salicylates or other drugs are given, except to the anæmic children, who receive iron and arsenic, together with a natural effervescent water containing arsenic and sodium chloride from the Max Spring at Dürkheim. All the children do graduated exercises for not more than ten minutes at a time under the strict supervision of an experienced instructress, and rest for a quarter of an hour afterwards; deep breathing exercises are not permitted to the cardiac cases. The complete course of treatment lasts six weeks. The children are examined on arrival and before discharge and once a week during their stay at the home. The case records are subsequently sent to the municipal medical officer who recommended admission, and he, in turn, examines the child as a routine three months after discharge, or sooner if the authorities at the home consider it advisable, and sends a copy of his report to the medical officer of the home. If necessary the child can then be sent back for a further four weeks' treatment, or the treatment may be repeated in successive years. Those in charge of the treatment consider that their results are very good.

[1] Lehrbuch der Kinderheilkunde, eighth edition, 1922.
[2] See Archives of Medical Hydrology, January, 1925, and January, 1927.

PRESERVATIVES AND POISONS IN FOOD.

ONE result of recent enactments about preservatives in foods has been the appearance of papers showing that a number of natural or simply prepared food substances supply their own preservatives. Fruits such as cranberries and bilberries contain benzoic acid; boiled sugar sweets, caramel, and smoked fish contain formaldehyde; and Mr. Scott-Dodd has shown that cacao beans may contain from 0·02 to 0·08 per cent. of boric acid, which apparently is also found in some untreated wines. Though it is improbable that sulphites will be found in natural products it might constitute a good fighting defence, in proceedings under the Food and Drugs Acts, to show that products containing sulphurous acid had been grown on the slopes of an active volcano. Poisons or substances more definitely poisonous than preservatives are also found in foods. Not long ago[1] we reported the discovery of arsenic in shell-fish, especially crustaceans, and it may be noted that Mr. R. E. Remington in the United States has found this substance in both

[1] See THE LANCET, 1926, ii., 1229.

smoking and chewing tobaccos in amounts reaching over gr. ¼ per lb., though the prohibitive cost of tobacco in this country makes this form of arsenical poisoning impossible for any but the wealthy. It is at first rather startling that foods and other articles which are more or less consumed by man should contain these ingredients naturally, and that these discoveries should be made at a time when we are seeking by enactment to obtain foods which are free from them. Consideration shows, however, that this is quite in the normal course of events. Plants are only to a limited extent selective in their abstraction of nourishment from the soil, and are likely to take up such small proportions of substances like borates as they can tolerate or to allow arsenates partly to take the place of phosphates. The inhabitants of the sea live in a medium which is a dilute solution of all the crust of the globe. It is essential for them to tolerate traces of all the elements and they may be able to utilise rather unusual ones in certain circumstances. These facts, so far as preservatives are concerned, are being found out in the course of exploring the natural defensive properties of food—properties which need exact investigation rather than intelligent surmise. In general the amounts of toxic or objectionable substances are small. Their presence under natural conditions must make the analyst carefully consider in every case whether there is good evidence of their having been artificially added; it gives no reason for supposing that it does not matter how much of these banned substances are contained in any food. The main object of restrictive legislation is to remove the possibility that any normal diet may contain them in harmful quantities.

OVARIAN HORMONES.

THE problem of the internal secretions of the ovary is becoming extremely complicated. There now seem to be four, and possibly five, different types of ovarian secretion—a sex-producing hormone, an œstrus-producing hormone, possibly two hormones derived from the corpus luteum, and a substance causing parturition. Hitherto, the interstitial cells have been generally regarded as the source of the hormone which influences the development of female secondary sexual characteristics, but opinion is by no means unanimous about this, and it is pointed out that these cells are not present in all species. Certain experimental facts, nevertheless, are well established. If both ovaries are removed in a young subject, not only do the uterus and external generative organs fail to develop, but the secondary sexual changes also either do not occur or are greatly modified; in older individuals regressive changes take place. If a suitable piece of ovary is transplanted into a spayed female, the sexual characteristics return, and if ovarian tissue is grafted to a male the animal becomes feminised. Moderate experimental exposure of the ovaries to X rays has been found to cause atrophy of the follicles (incidentally preventing formation of corpora lutea) whilst leaving the interstitial cells either unaltered or hypertrophied. Under these circumstances the uterus and secondary sexual characteristics also remain fully developed, which affords the chief evidence that the sex-producing hormone is derived from the interstitial cells and not from the follicles.

The œstrus-producing hormone (œstrin) and those formed by the corpus luteum seem to be intimately associated with the events of the œstral and menstrual cycles, and A. S. Parkes has shown that hormones from the corpus luteum are apparently necessary for the continuance of pregnancy. It has also been suggested by Parkes and C. W. Bellerby [1] that during pregnancy the corpus luteum exerts an œstrus-inhibiting influence which can be over-ridden by injections of œstrin, a substance which in sufficient dosage will terminate pregnancy both in its early and its later stages. This effect of œstrin in early pregnancy has been confirmed by L. Brouha and H. Simonnet, and the view that an œstrus-inhibiting factor is present at this time is strengthened by the observation that œstrin can readily be extracted from ovaries of pregnant animals and is also present in the placenta. Brouha and Simonnet [2] have also lately studied the effects of injections of œstrin in a series of animals before puberty, in adults in full sexual activity, and after the menopause, and in castrates, and their investigation has fully confirmed the original researches of E. Allen and E. A. Doisy. They found that injections made in animals just before puberty brought on œstrus just as it did in the other experimental animals; this induction of œstrus was always accompanied by growth of the uterus and by other characteristic changes in the genital tract. The use of œstrin in clinical work seems to be indicated when effects leading to menstruation are required, but so far its use in human beings has not been satisfactory. Œstrus and menstruation are not homologous, and in menstruation it is necessary to take into consideration other factors, notably the part played by the corpus luteum in inducing pre-menstrual changes in the endometrium. According to R. Schroeder,[3] ovulation occurs in the human subject between the fourteenth to the sixteenth day after menstruation, and the corpus luteum which is formed prepares the uterus for the succeeding œstrus. On the twenty-eighth day and during menstruation the corpus luteum is degenerate (W. Shaw [4]). Experiments have been reported by E. C. Dodds, F. Dickens and S. Wright,[5] and by E. Allen [6] in which definite menstrual phenomena have been induced in a monkey and in oöphorectomised monkeys and women by injection of follicular fluid. The work of Parkes,[7] however, indicates that the cycle cannot be entirely dependent either on Graafian follicles or corpora lutea, for his experiments with X ray sterilisation show that periods continue after both follicles and corpora lutea have been destroyed.

Lastly, there is the extract, for which Prof. W. E. Dixon is responsible, which can be obtained from the ovary at certain periods, especially during pregnancy, and on injection into animals brings about a secretion from the posterior lobe of the pituitary body into the cerebro-spinal fluid. Prof. Dixon believes that this plays a considerable part in the emptying of the uterus at the termination of pregnancy. The researches of Allen and Doisy with œstrin have certainly given a fresh stimulus to research on ovarian internal secretion, and it should not be long now before the fruits of this work are seen in clinical medicine.

[1] Jour. of Phys., 1926–27, lxi., 562.

THE AMERICAN HEALTH UNIT.

MODERN society has inevitably created a demand for larger administrative units in the conduct of public health, with resources adequate to their functions. Development in America is discussed in a booklet called "The County Health Unit," issued by the Milbank Memorial Fund. It describes a conference called recently by the Governor of New York State (Hon. A. E. Smith) to draw attention to the advantage of organising rural public health work on a county basis. Mr. Smith's views were thus expressed in his message to the State legislature in January, 1926: "The unit for local public health work should be the county, with a full-time qualified county health officer who should be made responsible for the conduct of local health matters within his jurisdiction, with any such supervision as the State may be required to give in an advisory capacity. Such an organisation has been possible under the law (in New York State) for several years; yet only one county—namely, Cattaraugus—has seen fit to take advantage of it, and with the very best results in promoting the physical welfare of the inhabitants. Other States have made notable progress in county health administration, and there are now some 307 such organisations throughout the

[2] Brux. Méd., 1927, Nos. 42 and 44.
[3] Arch. f. Gyn., 1914, ci.
[4] Jour. of Phys., 1925, lx., 3.
[5] Biochem Jour., 1925, xix., 853.
[6] Anat. Rec., 1926, xxxiii.
[7] Proc. Roy. Soc., 1927, ci., 71.

country." By a law of 1924 the State reimburses half the expenditure of the county boards of health, and the advantages which have apparently accrued to Cattaraugus county so impressed the conference that it commends the "larger health unit" plan to the other rural counties of New York State.

The immensity of the task before the United States was indicated by the statement that in the 48 States there are over 3000 counties, some 2700 of which are predominantly rural. At the opening of the century the mortality-rate of the rural districts was about 75 per cent. of that in the cities; of late years it has been 8 per cent. or 10 per cent. higher. As a rule the county is a suitable unit but in sparsely inhabited areas several counties would have to combine. It is not proposed to abolish the town and village health officers; they are to become deputies of the county officers. On the other hand, State aid will not be given to villages and towns on the grounds that they are too small to carry on a satisfactory public health programme. A minimum estimate of the staff required for a county unit includes a health officer, two or three public health nurses, a sanitary inspector, and a clerk-stenographer, their total salaries amounting to about $24,000 a year. The health staff of Cattaraugus county now numbers about 40, and to the $56,000 contributed towards their maintenance by the county and the State the Milbank Memorial Fund has added another $65,000. A large proportion of the Fund's income is used to finance rural health demonstrations as models for other districts.

THE SIGNIFICANCE OF A PIRQUET REACTION IN CHILDHOOD.

EVERY medical society worth its salt has its great days—days, or rather evenings, when a paper is read by the author of some "epoch-making discovery." A lively discussion follows, the potential maker of an epoch being supported by his coöperators and the inevitable optimist, and criticised by those whose appetite for the epoch-making discovery has become a trifle jaded. Apparently it was at such a meeting that Dr. Heimbeck read the paper on tuberculosis in nurses, to which reference has already been made in THE LANCET (August 6th, p. 290). It will be recalled that Dr. Heimbeck's Pirquet examination of probationers showed that over 50 per cent. gave a negative reaction, but that after a year or more practically every nurse was Pirquet-positive. What was passing strange was the observation that, of the 43 nurses who developed tuberculosis during their hospital service, as many as 40 had been among the Pirquet-negatives; only three had given a positive reaction when starting work in hospital. Conclusion: the young nurse who is Pirquet-negative in a hospital where she has to work hard and may be exposed to tuberculous infection is in grave danger. The spirited discussion following Dr. Heimbeck's paper included a most interesting contribution from Prof. Frölich on the value, or rather the disadvantage, of a positive reaction, at any rate as far as children are concerned. During the period 1912–15 he carried out a series of Pirquet tests in school-children. In 1925, with the help of Dr. Jörgensen, he re-examined 1830 of the 2400 (approximate figures) 7-year old children who, in 1912, had given a positive reaction. Of these persons, now 20 years old, as many as 223, or 12·2 per cent., had contracted some form or other of tuberculosis. On the other hand, of the 332 Pirquet-negative 7-year old children examined in 1912, only 9·3 per cent. were found in 1925 to have developed some clinical form of tuberculosis. If a conclusion is warrantable on the basis of these figures alone, it is that a positive Pirquet reaction as early as the seventh year of life is no cause for rejoicing—rather the reverse. As for the intensity of a Pirquet reaction, it was found that the subsequent incidence of tuberculosis was considerably greater among the children who had given a violent reaction than among those whose positive reaction had been mild. There has been a tendency during the last few years to regard the Pirquet test as so thoroughly "worked out" as to belong rather to routine and the clinician than to research and the research-worker. But the Norwegian workers have shown that this test may still have some surprises in store for us, and that it may be exploited in clearing up some of the still unsolved problems of immunity in connexion with tuberculosis.

THE REGISTERS OF APPLEDORE.[1]

PAROCHIAL documents, such as transcripts, registers, and churchwarden's accounts, are always interesting to read as preserving items of manners and customs which have either passed away or else are survivals of older customs. "But the Iniquity of Oblivion blindly scattereth her Poppy," and in many cases such documentary evidence has perished owing to lapse of time, to the carelessness of those who should have been the guardians of the records, or to the lust for destruction of so-called reformers. It is therefore a praiseworthy task that Dr. Cock has undertaken in stringing together pearls of information for the benefit of readers who have neither the time nor the ability to seek out and decipher the sometimes crabbed writing of registers and transcripts. Registers of births, deaths and marriages were first ordered to be kept in every parish by Thomas Cromwell, Henry VIII.'s bully, in 1538, so that shady personage has at least one good deed to his credit. Transcripts, copies of the registers, were sent up twice a year to the Archidiaconal and Consistorial Courts, and the series for Canterbury is, says Dr. Cock, the most perfect in England. From these transcripts the little book before us has been compiled. The documents examined are for Appledore and Eboney, and date from 1563–4 down to 1812, with a regrettable gap for the period 1642–1660—i.e., the Civil War and the Commonwealth. Dr. Cock notes that in the year 1591 there were several entries of burials of poverty-stricken people, such as, "John Cox a householder but extreme poore," and says that, according to the Rev. J. Johnson, vicar in 1700, most of the inhabitants were very poor; he surmises that this poverty was due in great part to malaria, which, as Appledore and Eboney are just on the edge of "The Mesh"—i.e., Romney Marsh—is very likely true. The Mesh in the eighteenth century and on into the nineteenth was a curious and somewhat uncivilised place in many ways. Most people who have any knowledge of the district will recall the incident recorded in the life of the Rev. R. H. Barham, of "Ingoldsby Legends" fame, who was curate of Snargate and Warehorn in 1817. In a house in the former village he was one day invited to partake of dinner, the dinner being what was known as "jump short pie." Barham ate his portion, praised it, and asked why it had such an odd name. His host explained that it was lamb. "You see, sir, the young lambs on the Mesh try to get over the drains; a many of 'em jump short, tumble in, and get drowned. Then we hook 'em out and put 'em in a pie. Have another help, sir?"

Of medicine Dr. Cock makes frequent mention. In referring to the preventive use of quinine he says that when this drug was first sold in the neighbourhood, about 1850, it cost £8 an ounce. Small-pox is noted in the register as a frequent cause of death, and in 1773, between Sept. 13th and Oct. 16th, four deaths are entered from this cause. In 1725 two men and their wives did public penance in church, and in 1728 a young woman did the same; all for breaches of the Seventh Commandment. In 1753 Peter Hook, the parish clerk, dropped down dead while repeating the Confession. Dr. Cock reminds his readers how the parish clerk used to lead the responses, and how often the whole service was a duet between parson and clerk. It is not generally known that one of the duties of the clerk is to read

[1] Notes from the Transcripts and Registers of Appledore, Kent. By F. William Cock, M.D., F.S.A. 1927. Pp. 17. 1s.

the Epistle when the priest is single-handed at the service. There is an appendix specially dealing with medical men in Appledore, and in reference to one of them, William Durand, buried October, 1792, Dr. Cock quotes an advertisement from the *Kentish Gazette* dated July 14th, 1770, wherein Mr. Durand informs the neighbourhood of his intention to practise, and sets forth his qualifications for the same in no unassuming terms. Of one Daniel Price, who combined the professions of preacher and doctor, Dr. Cock notes that he used to bleed himself profusely for any ailment, and in the end bled himself to death. Readers of *Waterton's Journals* will remember how he used to bleed himself to a pint or so and also take 20 gr. of calomel, for Demerara fever, without, however, any untoward results. We note that Dr. Cock's delightful little pamphlet is to be sold for the benefit of the Village Hall Fund, and surely the fund should benefit largely. Such information as it contains is not only of interest but of value, and it is only fitting that a medical man, a member of a profession which together with the clergy sees more into the ways and hearts of their fellows than do other men, should have devoted his time to recording these happenings.

THE PATHOLOGICAL EXAMINATION OF FRESH MATERIAL.

IN the course of the elaboration and improvement of laboratory technique there is a tendency for old and simple methods to fall into disuse. For the most part the newer methods have certain obvious advantages, sometimes, however, there is a loss. The paraffin method of cutting microscopical sections affords an example. This method on its introduction offered such obvious advantages over those previously in use that it was universally adopted, and to-day, to the vast majority of those not actually engaged in laboratory work, a section means a paraffin section. The method has the obvious disadvantage that, in the course of embedding, the tissue is submitted to very drastic usage and to the action of solvents which bring about great alterations in the character and contents of the cell. It is only necessary to read some of the descriptions of the older histologists, based upon the examination of fresh tissue, to realise what has been lost by this advancement in technique. Some of the advantages of the examination of fresh tissue were made clear and a simple technique described by Dr. B. J. Terry [1] at the meeting of the Pathological Society of Great Britain and Ireland in July last. This method consists in the examination of moderately thick sections of tissue, the upper surface of which is lightly stained. The sections are rapidly mounted on an ordinary microscope slide and illuminated by a strong beam of transmitted light. Probably this method was new to the majority of those who saw the demonstration, but it was by similar methods that the foundations of histology were laid. The routine examination of the blood forms another example of a procedure in which observation is now made almost entirely upon grossly altered material. In investigating a blood picture the present-day pathologist hardly ever by any chance makes an observation upon the blood as it leaves the vessels, without drying, staining, or mixing with some diluting fluid. Yet, as was well known to earlier workers, the appearances provided by the blood from the time it has left the vessel until clotting is complete may provide interesting and perhaps valuable information. In an address before the Société Médicale des Hôpitaux de Paris, Prof. Hayem [2] pleads for a return to the examination of "sang pur." Prof. Hayem many years ago perfected and described the examination of blood *á rigole*, but it is a procedure which has dropped from the armamentarium of the modern hæmatologist. The principal information to be derived from this method depends upon the rate of formation of the fibrinous network. A characteristic heavy network is quickly formed in pneumonia and rheumatic fever; it is scanty and tenuous in the enteric fevers. Observations upon the presence or absence of a leucocytosis can be readily made at the same time that the fibrinous network is being examined, and the two observations together may frequently give valuable information.

[1] Terry: Jour. Path. and Bact., 1927, xxx., 3.

[2] Hayem: Bull. et Mém. de la Soc. des Hôpitaux de Paris, July 28th, 1927.

THE SOURCE OF VITAMIN D.

THE resolution of discord gives as much satisfaction in the realm of medical science as in the realm of music. If contradictory views on, for example, the ætiology of an obscure disease are voiced in different centuries, their fusion into a workable theory is a matter for rejoicing; but when the controversy has been waged between two contemporary schools of physiology in our own times, and the views appeared to be irreconcilable if not mutually contradictory, the discovery that both sides are right is wonderful. The ætiology of rickets has been in dispute for a long time. For years one school of physiologists maintained that it was a deficiency disease, due to lack of a vitamin, whereas the evidence supplied by another, the Glasgow school, pointed to lack of fresh air and sunlight as the chief factor in its production. Heated discussions were reported in scientific publications, where each side described ingenious controlled experiments designed to test the theory. Gradually, as our knowledge of the properties of the various accessory food factors, and the symptoms exhibited by those whose diet was deficient in them, increased on the one hand, and the manifold effects of prophylactic and curative radiotherapy developed on the other, the protagonists became less virulent, and it dawned on them and on others that possibly sunlight could in some way compensate for lack of adequate diet. The mechanism whereby this might occur was for a long time obscure. Controlled work among children in Vienna just after the war, combined with results obtained elsewhere, left no doubt that rickets can be prevented or cured by dietetic measures, or by heliotherapy. At the same time K. Huldschinsky made the discovery that rickets could be cured by treatment with ultra-violet light from an artificial source. It thus became clear that the conflicting views of the ætiology of rickets were both correct. The strange fact that light can act as a substitute for diet in this connexion still remained an anomaly, which only slowly resolved itself. The various steps in its resolution, demonstrating the mechanism whereby each of the two factors exercises an antirachitic effect, have been chronicled in our columns during the last few years. The discovery by a number of workers independently that antirachitic potency can be imparted to inactive articles of diet, chiefly fats, by exposure to ultra-violet light first gave an indication of the explanation. This discovery was pushed further, and cholesterol, having the characteristics then known of the "chemically pure" substance, was found to be the constituent of these inactive bodies which were capable of activation. When purified still further, however, cholesterol lost this property. Eventually in THE LANCET of Feb. 5th, 1927, Mr. O. Rosenheim, F.R.S., and Mr. T. A. Webster explained their reasons for concluding that ergosterol, a highly unsaturated sterol, is the direct precursor of vitamin D. In a communication to our present issue (p. 622) the same observers add some further chapters to the complicated story. Their recent work seems to bring the matter to the point at which one can say, with scientific precision and not merely as a guess, that sunlight and cod-liver oil both cure rickets, because sunlight produces in the skin, from which it is absorbed, the substance which cod-liver oil provides ready made. But the position even now is far from being a simple one. Indeed, facts are coming to light which show that the reaction by which the vitamin is formed when ergosterol is exposed

to ultra-violet light is highly complex, and the possibility that the pro-vitamin is not ergosterol at all but an impurity is still not wholly excluded.

SIR WILLIAM GLYN-JONES.

WE regret to learn of the death of Sir William Glyn-Jones, the well-known pioneer in modern pharmaceutical developments, which occurred from cerebral hæmorrhage on Friday last, Sept. 9th, at Vancouver, where he had recently gone to take up the position of chairman of council of the newly formed Proprietary Articles Trade Association of Canada. He did more than anyone of his generation to raise the standard of the pharmaceutical profession.

William Glyn-Jones was born in Worcester in 1869, and spent his whole life in the interests of his chosen calling. As an assistant in a chemist's establishment in the east end of London, he found time to eat his dinners, and was called to the Bar in 1904. But he had already come into public view, for as much as 30 years ago he founded an association to put down certain abuses in the trade of patent medicines which were oppressing the best sort of retail chemists. At that time the sale of some obviously quack nostrums was used by unscrupulous traders to attract customers to their shops, the articles being sold at prices which yielded no profit. Dispensing chemists who did not relish these advertising methods were suffering in their conduct of legitimate business, and the new association was designed to put a stop to the evil by bringing manufacturers, wholesale druggists, and retail chemists together to remedy the situation. Regulations accordingly were made by which no proprietary medicine, the makers of which belonged to the association, could be sold below a fixed minimum price; any retailer who violated the rules was placed on a "stop list" and prevented from obtaining further supplies of any of the "protected" articles. The economics of this arrangement were subjected to certain criticism from medical men; by bringing together the members of all sections of the drug trade, it was demonstrated that what pharmacy had long been looking for—namely, an organised plan of development—had been found. Those who saw in the movement nothing but a plan for securing to chemists a profit on proprietary medicine learned to appreciate that the outcome has undoubtedly been for the public benefit.

Sir William Glyn-Jones used the dominant position in pharmacy which he had now obtained in a worthy way. The formation of the Chemists' Defence Association, the severance from the Pharmaceutical Society's activities of the trading interests of pharmacy, the union of the Society with the British Pharmaceutical Society, and last but by no means least the establishment of the pharmacological laboratories, were all movements in which he played a prominent part. As Member of Parliament for Stepney from 1910 to 1918 he took an active part in the framing of shop hours legislation; he served his craft in Parliament manfully, sometimes in opposition to the medical view, when the National Health Insurance Acts were in the making; and, as an expert on poison and pharmacy law, he influenced legislation in the Dangerous Drugs Acts. In 1918 he became secretary and registrar of the Pharmaceutical Society, which post he held until he took up his important duties in Canada. He was knighted in 1919 in recognition of his eminent services to the pharmaceutical profession.

THE NEW PRINCIPAL OF THE ROYAL VETERINARY COLLEGE.

Prof. Frederick T. Hobday, veterinary surgeon to the King, has been appointed Principal of the Royal Veterinary College of London in succession to Sir John McFadyean. From the time of his qualifying in 1892, he has devoted himself to the various aspects, scientific and practical, of veterinary medicine and surgery. He first attracted the attention of the College authorities by the development of the out-patients' clinic which, as professor of materia medica and therapeutics, came under his control. This valuable work he enlarged from the teaching aspect until two clinical assistants had to be appointed to assist in the administration and teaching. His next activity, which was largely recorded in various scientific and veterinary journals, comprised the investigation of anæsthetics for use in veterinary surgery, and in 1899 the College awarded him the John Henry Steel memorial medal as a recognition of the practical nature of his labours. In 1904 he became editor of the *Veterinary Journal* and shortly after a member of the Examining Board of the Veterinary College, and is now a member of the Council. During the war he was in command of one of the largest of our veterinary hospitals, while scientific medicine owes him a particular debt in that he was one of the chief promoters of the movement which brought into being the Section of Comparative Medicine at the Royal Society of Medicine.

WE regret to record the sudden death, on Sept. 12th, of Dr. Sydney Rawson Wilson, senior anæsthetist to the Royal Infirmary, Manchester. Dr. Wilson, who was 45 years old, has recently been working on impurities in ether, and published in THE LANCET of May 28th last an article on "Ether" Convulsions, which has given rise to much correspondence in our columns. It is feared that he was overcome while experimenting with an anæsthetic.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. R. Thompson is placed on the Retd. List with the rank of Surg. Capt.

J. H. Nicolson and R. Murray to be Surg. Lts.

ROYAL NAVAL VOLUNTEER RESERVE.

Surg. Comdr. A. G. L. Reade to *Ramillies* for 14 days' training.

ROYAL ARMY MEDICAL CORPS.

Maj. J. A. Clark retires on retd. pay and is granted the rank of Lt.-Col.

Capts. to be Majs. (Prov.): J. W. Malcolm, G. K. Maurice (remains secd.), and R. F. Walker.

Capt. R. Willan, late W. Afr. Med. Serv., to be temp. Lt. and temporarily relinquishes the rank of Capt.

ARMY DENTAL CORPS.

Temp. Lts., Dental Surgs., Gen. List, to be Lts.: J. B. Cowie and R. E. Edwards.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Qrmr. and Lt. W. H. Brown resigns his commn. and retains his rank.

Capt. J. B. Scott to be Maj.

Capt. R. G. Michelmore resigns his commn. and retains his rank.

Lt. J. L. Johnston to be Capt.

General Hospitals: Capt. D. Mallam resigns his commn. and retains his rank.

ROYAL AIR FORCE.

Flight Lt. F. P. Schofield is granted a permanent commission in this rank.

Maj. A. K. Macdonald, Army Dental Corps, is granted a temporary commission as Squadron Leader on attachment to the R.A.F.

Flight Lt. G. A. Ballantyne, D.F.C. (Capt., Army Dental Corps), relinquishes his temporary commission on return to Army duty.

Squadron Leaders: P. H. Young to Headquarters Coastal Area; D. McLaren, to Hospital Orderlies Training Depôt, Halton.

Flight Lts.: G. J. Griffiths to Basrah Combined Hospital; J. M. Maxwell (Quartermaster, Med.) to R.A.F. General Hospital, Iraq.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLI.—THE TREATMENT OF MYXŒDEMA.

THE treatment of myxœdema resolves itself largely into the administration in some form of thyroid extract or thyroxin, the active principle of the thyroid gland. Myxœdema is a true deficiency disease, and thyroid treatment is specific. Stress has also been laid on the necessity of removing any possible cause of thyroid depression which may exist at the time of observation, but in practice it is often found that when the disease has developed to the stage at which it can be diagnosed the causal factors are no longer playing an active part in its production. There may be an antecedent history of hyperthyroidism, the result of emotional stress or some septic process which has caused an exhaustion of the gland, or part of the gland may have been removed. Myxœdema may develop as the end-result of repeated pregnancies, or may appear with the termination of ovarian activity at the climacteric. Generally, however, there is little which can be done from the ætiological aspect of treatment, though it is always advisable to bear in mind the important part played by focal sepsis, intestinal toxæmia, and errors of diet, and to correct these as far as possible. Chief reliance must be placed on the administration of thyroid extract. It is to Prof. George Murray that we are indebted for the observation, in 1891, that the symptoms of myxœdema in human beings could be made to disappear by the subcutaneous administration of sheep's thyroid gland. Victor Horsley, previously to Murray's work, practised transplantation of sheep's gland into the tissues of a myxœdematous patient, but the results of this operation were unsatisfactory then, as they have been since, chiefly owing to the rapidity with which the graft is absorbed. The effects are only temporary and not lasting. Somewhat later it was shown by H. MacKenzie that extracts of thyroid gland taken by the mouth would also control the symptoms of the disease, and this has remained the standard method of treatment to the present day. With the advent of synthetic thyroxin (Harington, 1926), it seems probable that the use of gland extracts will gradually be discontinued, for the synthetic substance should be more dependable than the various preparations of thyroid extract now in use.

The chief difficulties in the past in obtaining satisfactory results in the treatment of myxœdema have been (1) the absence of any reliable method of gauging the dose required. Estimations of the basal metabolic rate are proving of considerable value. (2) The large number of different preparations of thyroid extract on the market and their tendency to vary in strength from time to time.

The Basal Metabolic Rate.

The basal metabolic rate is the rate of energy exchange in the body under basal conditions (after elimination of food, muscular exercise, and so forth). It can be found by measuring the amount of heat given out by the body in a given time, or indirectly by estimating the oxygen consumed per unit of surface area. This is the method employed clinically. A sample of expired air is collected by a specially designed apparatus while the patient is at rest and has fasted for 12 hours over night. The metabolism under these conditions is fairly constant for different individuals, and only varies within limits of plus or minus 10 per cent. In hyperthyroidism it may be as much as 75 or 100 per cent. above normal, whilst in myxœdema it may fall to 40 per cent. below normal. This test affords a means of accurately controlling the dosage of thyroid extract in myxœdema. It is scarcely necessary to point out that it must only be used as a supplement to clinical observation.

Thyroid Extract and Thyroxin.

The preparations of thyroid extract usually employed in the treatment of myxœdematous patients are fresh thyroid gland, desiccated thyroid gland (thyroideum siccum), liquor thyroidei (thyroid solution, B.P.1898).

In practice it is not perhaps sufficiently well recognised that these preparations are of different potency; unsatisfactory results often follow from the indiscriminate use of different preparations in any given case. The strength depends mainly on the iodine content of the substance employed. Of the preparations mentioned, desiccated thyroid is five times the strength of the fresh gland, 1 gr. of thyroideum siccum corresponding to 5 gr. of fresh or whole gland; 5 gr. of fresh gland has the same potency as 10 ♏ of liquor thyroidei. The following comparative table may be of use :—

Thyroid (desicc.) ..	¼ ..	½ ..	1 ..	2 ..	3 ..	4 ..	5 gr.
,, (fresh) ..	1¼ ..	2½ ..	5 ..	10 ..	15 ..	20 ..	25 gr.
,, (liquor) ..	2½ ..	5 ..	10 ..	20 ..	30 ..	40 ..	50 ♏

Since reliable preparations of desiccated thyroid are readily obtainable from most firms, it would seem advantageous to use this extract as far as possible in all cases.

Reference has already been made to the introduction of synthetic thyroxin by C. R. Harington. Clinical reports of its effects in myxœdema are still scanty.

D. M. Lyon and F. A. Redhead[1] report results obtained in two myxœdematous subjects. The metabolic activity of both patients increased immediately and rapidly, one by 26 per cent. and the other by 48 per cent. Corresponding rises in temperature and pulse-rate and decrease in weight accompanied the rise in basal metabolism. W. A. Plummer and W. M. Boothby have also made numerous clinical observations in cases of myxœdema with thyroxin, using the active principle isolated by C. C. Kendall from the gland in 1915. The results are apparently clear cut and almost quantitative when this substance is given intravenously. The myxœdematous symptoms are relieved, and it is calculated that 1 mg. of thyroxin causes an average increase of 2·8 per cent. in the basal metabolic rate, a 10 mg. dose raising the metabolism from minus 40 per cent. to minus 12 per cent. In a large series of cases this figure was remarkably constant. Intravenous administration is not essential; the same effect was obtained when thyroxin was given by the mouth. Thyroxin is now supplied commercially in doses of 0·2 mg., 0·4 mg., 0·8 mg., and 2 mg. to be taken by the mouth. Based on the percentage iodine content of the two preparations, 0·2 mg. of thyroxin (Harington) corresponds approximately in potency to two-thirds of a grain of the desiccated gland.

Management of a Case.

The therapeutic indications are, therefore, clear. The basal metabolism of a patient with myxœdema must be brought to the normal level and there maintained by an appropriate daily dose of thyroid extract or thyroxin in some form. In practice it is not possible to have estimations of the basal metabolic rate made often, and in the ordinary straightforward case it is certainly not necessary to submit the patient to the inconvenience of several estimations. An initial examination, however, may be of considerable value, and will give a good idea of the amount of thyroid extract which is likely to be required to raise the patient's metabolism to normal. To a large extent the basal metabolism runs parallel with the pulse-rate, so that for ordinary purposes the latter will usually be a sufficient guide, especially if it is used in conjunction with other clinical data, notably variations in the patient's weight. It is important to make routine observations when giving thyroid preparations by the mouth, and, owing to the variability in the extracts and in their absorption from the gastro-intestinal tract, to standardise clinically, or by means of the basal metabolic rate, not only the preparation but also the individual patient. After the initial tests it is usually sufficient to note the clinical effects when thyroid is given by the mouth. Most cases of myxœdema are extremely sensitive to this extract, so that it is best to commence with a small daily dose and gradually to increase it at intervals of a week or so until an appropriate maintenance dose has been found. A satisfactory result can usually be obtained by starting with gr. ¼ of the desiccated gland once a day, increasing to gr. ¼

[1] Edinburgh Medical Journal, April, 1927.

twice a day at the end of a week, to gr. ½ twice a day at the end of another week, and later to gr. 1 twice a day. This is an adequate maintenance dose for the average case of myxœdema, and a larger one is seldom required. It is necessary, however, to judge entirely by results, and no rules can be laid down. The patients themselves often rapidly acquire a knowledge of what is the optimum dose for them and can give considerable help to the physician. They should be warned at the start that treatment will have to be continuous throughout their lives, and that successful results depend to a large extent on the systematic supply of thyroid extract in the correct dosage. Since the effects of the remedy are so obviously beneficial, there is seldom any difficulty in obtaining complete coöperation from the patient.

A warning is also necessary as to the symptoms of overdosage. It is often a good plan to stop the routine administration for a day or two each week, or for a few days each month, to avoid any accumulative effects. For the same reason attention to the bowels is advisable. If overdosage does occur, all thyroid should be stopped for a week or two and started again at half the previous dose. The extract should be discontinued during the course of any acute illness, or if any septic process is present, such as tonsillitis or pyorrhœa; under these conditions symptoms of hyperthyroidism are liable to appear if thyroid treatment is persisted with. The symptoms of an overdose are headache, nervousness, palpitations on exertion, diarrhœa, insomnia and mental irritability, and general malaise. There is also excessive loss of weight, tremor, and tachycardia. It is not difficult to detect signs of overdosage at an early stage, for when the myxœdematous symptoms have once cleared up the weight should remain more or less constant at approximately the average normal level of the patient before his illness.

Diet.—The value of any food as far as the thyroid is concerned is to a large extent dependent on its iodine content, and it has been shown experimentally that with an exclusive meat diet, in which the iodine content is low, the gland tends to atrophy. The same result is brought about by inanition. It is advisable, therefore, to see that the diet is adequate in quantity and quality. A mixed diet containing an abundance of fish, fruit, and vegetable is appropriate. Where myxœdema is associated with obesity a very much better result can often be obtained by a moderately severe restriction of carbohydrates. Less thyroid extract is generally required in these circumstances, and this is advantageous inasmuch as these patients often show a tendency to cardiovascular instability.

Cardiovascular Considerations.—Patients with myxœdema frequently have symptoms and physical signs of cardiovascular insufficiency. This may be coincidental or the result of the thyroid condition. The heart usually shares in the process of myxœdematous infiltration, or may be fatty. Arteriosclerosis is not an uncommon complication. In such patients, when thyroid extract is given in quantities sufficient to cure the myxœdematous symptoms, increased work is thrown upon the heart, and it may take time to adjust itself. It is usually advisable, therefore, for this type of patient to remain in bed during the first part of the treatment and to take no unusual exertion. In severe cases a course of digitalis or other cardiac therapy may be given before treatment with thyroid extract is started.

Conclusion.

The most essential features in the treatment of myxœdema are the removal of all sources of thyroid depression and the regular supply to the patient of some form of thyroid extract or thyroxin in the correct dosage. The results are generally satisfactory. The original patient treated by Murray was 46 years old and lived in good health for over 28 years after developing the disease.

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Special Articles.

THE PHOTOCHEMICAL PRODUCTION OF VITAMIN D FROM ERGOSTEROL.

BY O. ROSENHEIM, F.R.S.,
AND
T. A. WEBSTER.

(*From the National Institute for Medical Research, London.*)

THE recognition of the fact that ergosterol is converted by the action of ultra-violet light into a powerfully antirachitic substance raises new problems of scientific interest, bearing directly on the practical application of the discovery to the prevention and cure of rickets and osteomalacia, as well as to the general control of the calcium balance.

It may be readily conceded that the newly established facts signify a considerable step forward in so far as they place at least one of the elusive vitamins in a group of organic non-nitrogenous substances, immediately related to the sterols, which possess well defined chemical and physical properties.* Except for the fact, however, that one member of this group, ergosterol, is converted by the action of ultra-violet light into a resinous substance of high antirachitic activity, we know nothing at present. Not only is the nature of the intramolecular change induced by light unknown, but also other important questions remain unanswered, such as the optimum condition for the production of the vitamin, and the amount as well as the particular wave-length of radiant energy required to activate ergosterol. Nor do we yet know in exact figures what quantity of the vitamin so produced is required for the normal development of an animal of a particular species. We only know that the absolute quantity required of the pure substance must be very small, and that excess is apparently innocuous.

It is evident that the solution of these problems requires the collaboration of the biochemist and the physicist, especially in a study of the relationship of induced antirachitic activity in ergosterol to the latter's ultra-violet absorption spectrum. In this connexion it becomes necessary, in view of the tendency of some recent physical work on the subject, to point out that the problem of rickets—i.e., defective calcification in the growing child or animal—is essentially a biological one and, as such, can only be experimentally attacked and finally decided by animal experiment. Conclusions, unsupported by animal tests, drawn from the evidence of purely physical phenomena alone, such as measurements of ultra-violet absorption spectra, may be very misleading, as will be shown later. The spectroscope has afforded valuable confirmatory evidence, although by itself inconclusive, in the previous work on the nature of the vitamin's precursor (i.e., ergosterol), and will no doubt still be useful in further work on the isolation of the vitamin itself. Until this object has been achieved, however, the presence as well as the amount of an antirachitic substance can only be ascertained by the animal test.

When we established last year the fundamental fact that ergosterol is rendered highly antirachitic by irradiation,[1] we did not determine quantitatively the limit of its activity, and even in the subsequent joint work with Windaus, reported in THE LANCET,[2]

* These facts raise again the question of nomenclature; irradiated ergosterol is nitrogen-free and not an "amine." It has even been argued that it may not belong to the group of "accessory food factors" or vitamins at all, since ergosterol may possibly be synthesised by the body, as is cholesterol, and subsequently be activated by sunlight. In view of the historical development of the subject, however, it seems desirable to retain the name vitamin D until the time, probably not distant, when it can be definitely replaced by a more precise term, expressing its constitution.

we had only reached 1/250 mg. per diem of irradiated ergosterol as the lowest daily dose then tested on the rat. Further work [3] has now shown that the limiting prophylactic and curative dose falls into the surprisingly low region of from 1/10,000–1/20,000 mg. According to the results of Miss K. H. Coward, D.Sc., which she kindly allows us to quote, the calcifying effect of a specimen of irradiated ergosterol, prepared by ourselves, can still be demonstrated even with a dose of 1/100,000 mg. per diem by means of the "line test." The results of the animal experiments have been fully confirmed by the clinical experience so far reported. Human rickets is rapidly cured by doses of 2–4 mg. of irradiated ergosterol per diem,[4 F 6] the rapidity of the cure exceeding, in the opinion of two observers, that achieved by cod-liver oil or direct irradiation.

Optimum Conditions.

Our first object, in continuation of this work, was to establish the conditions for the maximum production of vitamin D, when the ultra-violet radiations of the mercury-vapour lamp serve as a source of energy. A study of the time factor was made in the first instance by exposing 0·1 per cent. solutions of ergosterol in pure ether or alcohol for periods of from 30 minutes to four hours. The distance from the lamp was 20 cm. in each case. The effect of a longer exposure was not investigated in this series, since it is established that vitamin D is destroyed by prolonged irradiation. We have already reported that the typical absorption band of ergosterol gradually disappears on irradiation and that the precipitability of the product by digitonin decreases pari passu. On the assumption that the gradual disappearance of ergosterol during irradiation might serve as an index for the formation of vitamin D, we determined the amount of ergosterol remaining unchanged after these periods. The limited supply of pure ergosterol at our disposal prevented us from using the gravimetric digitonin method, and we therefore worked out a roughly quantitative method, depending on the determination of the dilution necessary to produce a just visible precipitate with digitonin. The minimum antirachitic dose of the various reaction products was determined by the animal experiment, using the technique previously described.

The results of a typical experiment are given in the following table:—

Time of exposure in minutes.	Solvent.	Appearance of residue.	Unchanged ergosterol.	Minimum protective dose per diem.
				mg.
30	Ether	White, crystalline.	90 per cent.	1/10,000
120	„	White, partially crystalline.	40 „	„
150	Alcohol	„ „	—	„
240	Ether	Yellowish, resinous.	10 per cent.	„

The surprising results of the animal tests prove conclusively (1) that under the above conditions the maximum amount of antirachitic activity is produced by irradiation for half an hour, or possibly less,† by the mercury-vapour lamp; (2) that prolonged irradiation—i.e., four hours—produces the same yield as a short exposure of 30 minutes; and (3) that the antirachitic activity of the reaction products does not increase pari passu with the disappearance of ergosterol, but remains constant.

This series of animal tests furnishes a striking experimental contradiction of the theoretical conclusions reached on the basis of spectroscopic observations only. It has been found that on irradiation of ergosterol a new ultra-violet absorption band makes its appearance, extending over the region 230–260 μμ, with a maximum at 247 μμ. This band has been assumed to be characteristic for vitamin D by Pohl [7] and Morton, Heilbron, and Kamm.[8] Without the evidence of animal experiments the latter authors conclude from their measurements that "anything approaching a satisfactory yield in the reaction requires prolonged irradiation" and "that the mercury-vapour lamp is unsuitable for this particular photochemical reaction." Both conclusions, which were made with reference to the industrial preparation of the product, are not in agreement with the results of the animal experiment. Whilst we are not concerned with the obviously important question of the most economical source of ultra-violet light suitable for industrial purposes, it may be said that no higher activity, as directly measured in animal experiment, has as yet been reported by the use of any other source (metallic sparks, &c.) than that described by us and obtained with the mercury-vapour lamp.

Various possibilities present themselves in explanation of the unexpected result revealed by the biological test. It may be due to the complexity of the reaction, which does not stop at the stage of vitamin formation, but proceeds further to its rapid destruction. The question whether a state is reached at which the two reactions, ergosterol—>active substance and active substance—>inactive products, proceed at equal rates, so that the activity remains constant till ergosterol is exhausted, is now under investigation. On the other hand, the possibility is not altogether excluded that the effect may be due to an impurity contained in ergosterol and identical with the one shown to be the cause of the induced activity of cholesterol. The position may be even more complex; both possibilities may exist together.

We have so far been unable to find any evidence for the presence of such an impurity in ergosterol. It must, however, be remembered that the present methods of purification are merely physical ones, such as are known to be inefficient in the purification of cholesterol. Unfortunately the chemical methods which helped us in the case of cholesterol (preparation of the dibromide, &c.) cannot be applied to ergosterol, since they lead to the destruction of this more labile molecule. We tested for the presence of an impurity in the first instance by a fractional recrystallisation of the acetate of ergosterol. We established the interesting fact that both ergosterol acetate and benzoate can be activated to the same degree as ergosterol itself. (This fact seems to show incidentally that the hydroxyl group is not concerned in the molecular change induced by ultra-violet light.) For the purpose of the fractionation experiment we started from the mixture of sterols (M.P. 154°), as it is obtained from ergot. According to Tanret [9] this contains besides ergosterol about 10 per cent. of another sterol, fungisterol. The absorption spectrum of the "crude" ergosterol was found to be identical with that of the purest ergosterol at our disposal, and its antirachitic activity after irradiation reached the usual high figure of 1/10,000–1/20,000 mg. Although we have not yet succeeded in preparing a fraction representing absolutely pure fungisterol acetate according to Tanret (M.P. 158°, $[\alpha]_D = -15{\cdot}9$), we were unable to detect any difference in the activity of the various irradiated fractions.

We further attempted to remove the supposed impurity by converting it into vitamin D by irradiation, and recovering the unchanged ergosterol. The partially crystalline product remaining after irradiation and removal of the ether was treated repeatedly with warm petrol, in which vitamin D and other reaction products are easily soluble, whilst ergosterol is relatively insoluble. The perfectly white product was recrystallised from 96 per cent. alcohol and showed the same melting-point (160–162°) and the same characteristic absorption spectrum as the starting product. We are continuing this experiment on a larger scale, controlled by animal tests, and subjecting the product repeatedly to irradiation and recrystallisation.

Failing any evidence of the presence of an impurity in ergosterol, which might act as the parent substance of the vitamin, we think that it is proper to adopt, at least provisionally, the view above indicated, that a

† It may be stated that an exposure of ten minutes failed to produce the maximum potency.

highly complex reaction results from the action on ergosterol itself of ultra-violet light, from any source containing radiations in the region of 320 μμ–230 μμ. This is all the more likely as it is known that vitamin D is a photochemically unstable substance, and since we are still in ignorance of the actual wave-lengths concerned in its production and destruction respectively. It is justifiable to assume, from such knowledge as we possess, that the mercury-vapour lamp emits radiations exerting both functions. It seems that the production of the active substance rapidly reaches a maximum, and that afterwards its destruction proceeds at the same rate as its formation, the exhaustion of the available ergosterol leading to its final disappearance. A solution of this problem should be possible by a systematic investigation, controlled by the animal test, of the effect on ergosterol of monochromatic radiations of known wave-lengths. This investigation is at present being carried out in this Institute.

Activation by Sunlight and Presence in Skin.

In preparation for this work we have investigated whether the activation of ergosterol can be effected by ultra-violet radiations of longer wave-length than those in which the maximum absorption by ergosterol takes place. This question is also of interest, as it has a direct bearing on the explanation suggested for the synthesis of vitamin D by sunlight in the animal organism, and on the consequent prevention or cure of rickets. The absorption spectrum of ergosterol begins approximately at a wave-length 320 μμ and shows three well-marked absorption bands, the strongest being at 280 μμ. It would naturally be expected that light of this wave-length would be particularly effective in activating ergosterol, especially since this band gradually disappears during the formation of vitamin D from ergosterol. On the other hand, sunlight which, after passing through the upper atmosphere, is free from radiations of shorter wave-length than 296 μμ, is known to have curative and preventive action on rickets when acting on the skin. Hume, Lucas, and Smith [10] drew attention to the difficulty which these facts appear to create for the view that the curative effect of direct irradiation of the child or animal by sunlight is due to the formation of vitamin D from ergosterol in the skin.

It may be pointed out, however, that we have previously shown that ordinary cholesterol is rendered antirachitic by exposure to the ultra-violet radiations of summer sunlight, as well as by those of the mercury-vapour lamp. This property was found to be due, according to our subsequent work, to the presence as an impurity in cholesterol, purified by physical means only, of traces of ergosterol or a similar sterol. We have since repeated the experiment with pure ergosterol itself.

A saturated alcoholic solution of the substance, contained in a quartz tube filled with nitrogen, was exposed from 10 A.M.–5 P.M. for four consecutive days (May 23rd–26th). During this period there were three cloudless sunny afternoons. The intensity of the ultra-violet radiations, as measured by the acetone-methylene-blue method of Webster, Hill, and Eidinow, amounted to 16 units. After evaporation of the alcohol the crystalline residue was dissolved in olive oil and its antirachitic activity tested by the methods previously described. It was found that a daily dose of 1/100 mg. of the irradiated product completely protected rats on a rachitogenic diet against rickets.

It is obvious, therefore, that the ultra-violet radiations of relatively longer wave-length contained in sunlight are able to effect the conversion of ergosterol into vitamin D. As in the case of the curative effect of direct irradiation on an animal, a longer exposure to sunlight would be required to induce as high an activity as that obtained by the more powerful artificial light.

In order to test this question still further, we used a screen of vitaglass in connexion with the mercury-vapour lamp. Previous spectroscopic measurements, kindly carried out for us by Dr. R. B. Bourdillon in this Institute, had shown that two sheets of the screen in use only transmitted to an insignificant extent radiations of shorter wave-length than 285 μμ.

The exposures varied from 4–5 hours and ether, alcohol, and petrol were used as solvents. The latter solvent was chosen in order to exclude the possibility of peroxide formation, which might have a deleterious action on the vitamin production. For the same reason, the alcoholic solution was irradiated in a nitrogen atmosphere. No difference in the degree of activation in the different solvents, however, was observed. The results are given in the following table:—

Distance from lamp.	Solvent.	Thickness of screen.	Time of irradiation.	Minimum protective dose.
20 cm.	Ether	4·8 mm.	5 hours	1/10,000 mg.
10 ,,	Alcohol	4·8 ,,	4 ,,	,,
20 ,,	Petrol	2·4 ,,	5 ,,	,,

It will be seen that in all cases the maximum activity was induced, identical with that observed in the previous experiments without the screen. We intend to investigate whether a shorter exposure under these conditions will suffice, and whether the screen will prevent the destruction of the vitamin in a prolonged exposure.

The results already obtained justify the conclusion that the long wave-length ultra-violet radiations of sunlight, and also those which penetrate vitaglass are able to convert ergosterol into a highly active antirachitic substance. It may be assumed that a similar process takes place in the prevention or cure of rickets by exposure of the skin to sunlight. The assumption of Holtz [11] that the skin may change the visible radiations of long wave-length into those of the essential short wave-length is totally unnecessary, in view of the fact that sunlight activates ergosterol.

The fat of the human skin contains a surprisingly large percentage of cholesterol, 13–24 per cent. according to the estimations (digitonin method) of Eckstein and Wile.[12] Since it had been shown [13 14] that the consumption of irradiated skin protects rats against rickets, it became of interest to investigate whether the cholesterol of skin contains ergosterol as an impurity, as do the preparations of cholesterol from all other animal sources. We had an opportunity of testing this question on several hundred grammes of fat obtained from pig's skin, which Dr. H. H. Dale put at our disposal. This was obtained as a by-product from an extract of skin, which Dr. H. C. Hagedorn, of Copenhagen, had kindly prepared for a different purpose. In a preliminary investigation cholesterol was easily isolated by saponification of the fat. The product, crystallising in the typical form from alcohol, possessed the M.P. 147–148° and, on examination of its ultra-violet absorption spectrum, showed an absorption identical with, but more intense than that of cholesterol from brain, described and illustrated in our previous work.[3] Further, it was found that the crystals fluoresced in the light of the mercury-vapour lamp, from which the visible light was screened off by "Wood's glass" and bromine vapour. Under the same conditions cholesterol, purified by way of the dibromide, was non-fluorescent, whilst ergosterol exhibited a strong light-blue fluorescence. It has been shown that vitamin D in irradiated cholesterol can be absorbed from a small area of undamaged skin in sufficient amount to supply the needs of the animal.[10] Taken in conjunction with all the established facts, the demonstration of a substance possessing the same optical properties as ergosterol in the cholesterol of the skin, offers an obvious explanation of the well-known curative effects of sunlight in rickets, the ergosterol in the fat of the skin being converted thereby into vitamin D.

Summary.

The lowest protective dose of vitamin D, induced by irradiation of ergosterol, was found to be 1/10,000–1/20,000 mg. per diem for the rat. The maximum

activity is produced within one half-hour by the radiations of the mercury-vapour lamp (under the conditions described) and remains constant on prolonged irradiation up to four hours. The amount of ergosterol disappearing during the reaction does not stand in relationship to the amount of vitamin present at any given time during this period. In explanation it is suggested that after a short initial period, the formation and destruction of the vitamin proceed at the same rate, so that the activity remains constant till the available ergosterol is exhausted.

Ergosterol is activated by the radiations of sunlight, as well as by the long wave-length radiations of the mercury-vapour lamp. This fact helps to explain the curative effect of sunlight in rickets. The full experimental details of this investigation will be published in full elsewhere.

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IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Health Reform in the Free State.

THE report of the Committee of Inquiry on National Health Insurance and the Public Medical Services [1] was unfortunate in that it was published in the daily papers on the day before the murder of Mr. Kevin O'Higgins, and therefore attracted little public notice. The first serious comment on it has now appeared in a memorandum adopted last week by the National Association of Insurance Committees. This body expressed its conviction that the only satisfactory solution of the problem of the provision of adequate medical treatment for the working classes and their dependents—whether insured persons or otherwise—lies in the immediate adoption of a national scheme of medical services on a contributory basis, comprehensive in scope and freed from all association with Poor-law administration. It is disappointing that the Committee has not recommended the immediate adoption of such a comprehensive scheme as a practical measure, for not only is the care of the public health one of the first duties of Government, but true national economy lies in the preservation of the working capacity of the people. Economy secured at the expense of the people's health is prodigal waste of national asset. The Association agrees that unless a national scheme embracing insured persons as well as others is immediately adopted, the provision of medical benefit for insured persons is an urgent necessity, but it cannot commend the proposals for medical benefit adumbrated in the final report as satisfactory to insured persons. In its opinion, the very limited advantages which they might confer on certain classes of insured persons are not commensurate with the sacrifices which insured persons generally, as well as their employers, are called upon to make. The Association considers that any scheme of medical benefit to be satisfactory to insured persons must comply with certain essential conditions:—

(*a*) It must be completely dissociated from Poor-law administration.

(*b*) The treatment provided must be thoroughly efficient, which connotes agreement with, and the full coöperation of, the medical profession.

(*c*) Being on a contributory basis, its operation must be open to the free criticism of the persons whom it serves, and it must provide convenient machinery for the investigation of complaints. It must, therefore, be locally administered by bodies on which the contributors, as well as the other interests concerned, are represented.

The Association, as was to be expected, is opposed to the proposal of the Committee of Inquiry that insurance committees should be abolished and their duties transferred to the local authorities. It is satisfactory to find a representative body of this kind coming out strongly in favour of a comprehensive scheme of health reform.

Local Appointments.

By the terms of the Local Appointment Act, 1926, the local authorities were deprived of the power of choosing their officers, except in the case of transfer of existing officers. The nomination to each office is made by a civil service board, the Local Appointments Commissioners, who themselves are guided, in the case of medical appointments, by the advice of a Selection Board, consisting mainly of medical men of repute and good standing. When the Bill was before the Dail it met with considerable opposition, but nevertheless became law. It is only since the Act has begun to work that the members of the local authorities have begun to realise that they have no longer any power of patronage. Many of them are showing their anger by obstructing the working of the Act. One Board of Health, in disgust at failing to secure appointment to a vacant dispensary district for a local candidate, resigned in a body. A few years ago a member of the Board of Health of this same county served a term of imprisonment for having solicited bribes in regard to a dispensary appointment. In many other cases appointments have been delayed and wrangles have taken place between the local authority and the Department of Local Government and Public Health. The law cannot be evaded, however, and the Department is obdurate in insisting on its terms being obeyed.

From another side the work of the Local Appointments Commissioners and the Selection Boards has come in for some criticism which is more worthy of attention. As I understand it, the procedure is approximately as follows. When a vacancy, or more often a group of vacancies, has occurred in the dispensary medical service, an advertisement is issued, applications being invited. Each candidate, with his application, must pay a fee of £1. The list of candidates is submitted to the Selection Board, and in some cases at least the Selection Board has not merely scrutinised the claims and qualifications of the candidates, but has interviewed all the candidates. This appears to be unnecessary and unbusiness-like. There may be 50 or 60 candidates for one or two vacancies, and the Selection Board ought to be able to select, say, half a dozen of the most promising candidates on the documentary evidence submitted. The final choice should only be made after interview. It is grossly unfair to compel a few score candidates who have no chance of selection to travel from England, Wales, or the distant parts of Ireland, without any compensation or grant for expenses. Moreover, the tax on the time of the members of the Selection Boards who, up to the present, are giving their services gratuitously, is greater than need be. These faults are incidental to the system, but they are giving rise to considerable discontent and should be eliminated.

[1] See THE LANCET, July 23rd, p. 198.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Lower Death-rate.

THE figures recently presented to the Vienna Municipal Board of Health show a remarkable improvement in the health of Vienna since the beginning of the century. In 1900, for instance, the mortality of infants during the first year of life was 178 per 1000, and even in 1913 it stood at 148; whereas in 1925 it had gone down to 80, this level being maintained in 1926. In other words, the decrease during the period has been over 50 per cent., occurring most rapidly since the war, in consequence of the organised care of infants instituted by the municipality. It may be noted also that the general mortality is steadily falling. In 1910–13 the average death-rates was 16·3 per 1000; between 1913 and 1919 it rose to 20·8, and after that went down till it reached its lowest level of 12·2 in 1925. The reduction was secured in spite of the hardships of the post-war period and the persistent unemployment of over 15 per cent. of the population. A death-rate of 12·2 is less than that of Munich, Breslau, and Warsaw (13–14), Paris (14–15), Budapest (16·5), and Rome (17–18), and is bettered only by a few German, Swiss, and English cities (between 9 and 11). Among the particular causes of death tuberculosis takes an important place, the proportion of deaths due to this disease being 20 per cent. in 1914, 28 per cent. in 1916, and 31 per cent. in 1918. This rise was, of course, attributable to the war. In 1920 the proportion still stood at 24 per cent., but in 1925 it fell to 15, which was less than before the war. Though the figure unfortunately went up again slightly in 1926, the systematic campaign against tubercle has done so much to bring down mortality from the disease that steady improvement may be expected in the near future.

Tuberculosis.

At a meeting of German railway doctors, held in Vienna a few days ago, Prof. Roepke read a paper on the principles of the campaign against tuberculosis. After reviewing the famous experiments of Koch he explained the methods of immunisation proposed by Selter (small quantities of living but much weakened bacilli), Friedländer and Calmette (large quantities of non-virulent bacilli), and Langer (dead bacilli). At present, he said, we are not in a position to state which of these methods is best for protecting people who are exposed to infection, and it will be at least 15 or 20 years before we can say definitely how the artificially produced immunity of the infant influences morbidity and mortality in the later years of life. Perhaps too much is expected of artificial immunity, and more stress should be laid on natural immunity acquired from a mild attack of the disease. The objective at present is to enable infants to survive the first two years of life without tuberculosis, for it is during this period that infection is most common and most deadly. With increasing age the natural powers of resistance in the child become capable of combating the bacilli, though they should be assisted by hygienic measures, including light and air. The second very important aim in the campaign is to remove the most serious source of infection—the patient with open tuberculosis. It is the paramount object of all prophylaxis to recognise patients with cavities in the lungs, especially adolescents, as early as possible, and to start regular treatment which will render them innocuous to their surroundings. Statistics show that, so far as Germany is concerned, the fight against tuberculosis is approaching its decisive and final stage; for since 1920 there has been a constant drop in mortality from 2·3 per 1000 in 1918 to less than 1·0 per 1000 at the present time in all towns with a population of 15,000 or over. A larger percentage of the affected persons are nowadays permanently cured, the chronic cases live longer, and fewer patients need be admitted to sanatoriums, all of which facts make it possible to be very hopeful about the ultimate issue. Optimism should be maintained, said Prof. Roepke, in spite of reports from cities such as Vienna, where the mortality is still 2 per 1000, or twice as high as in Germany. And even here, as I have indicated, the death-rate compares very favourably with what it was a few years ago.

Medical Congresses in Vienna.

During the last few years Vienna has been repeatedly selected as a meeting-place for German-speaking medical societies, perhaps because the city offers such good accommodation for large numbers of foreign visitors, and partly because it contains so many interesting medical institutions. In the last week of September the Convention of Surgeons from the Alpine Countries take place here; in the last week of September and the first week of October there will be a meeting of Austrian country practitioners, combined with a fortnight's international post-graduate course in therapeutics; and from Oct. 4th to 7th the Society for the Study of Diseases of Metabolism and of the Alimentary Canal will hold its seventh annual meeting in the city.

Dental Disease and Metabolism.

Dr. Josef Weinmann, in a paper recently read before the Vienna Dental Society, stated that he has observed that a large percentage of the patients who come to the dental clinic suffering from pyorrhœa or complaining of loss of teeth show signs of disturbed metabolism. Assisted by Dr. Liebesny he has investigated all such cases, and has found in over 80 per cent. of them definite diminution in the activity of the pituitary gland. Dr. Liebesny suggested the use of diathermy to increase the internal secretion, and this treatment was employed, together with internal medication (ovarian, thyroid, and pituitary extract). Dr. Weinmann found that the condition of patients receiving this combined treatment improved considerably in the course of some four to eight weeks. All the patients at the dental clinic are now being investigated on these lines, so as to give the new method an extensive trial before it is publicly recommended. The object of making a preliminary report is to induce other clinics to try experiments for themselves on the same lines and inform Dr. Weinmann of their results.

ROYAL MEDICAL BENEVOLENT FUND.

THE following are some additional cases relieved at the last meeting:—

Daughter, aged 56, of M.R.C.S. Eng. who died in 1873. Has lived with widowed sister, helping with domestic duties. Has a temporary allowance from brother-in-law of £5 5*s.* a month and pays £4 5*s.* towards board and room. Now recovering from a severe operation and asks for financial help towards convalescence. Voted £18.

Widow, aged 64, of L.R.C.P. Edin. who died in 1917. No children. Went as a clerk into the district county council, but has had to resign on account of ill-health. Remuneration from post, £118; investments, £4 per annum; health insurance, 7*s.* 6*d.* a week; Freemasons, £2; gift from staff on retirement, £22; friends, £3. Rent and rates, £17 per annum. Voted £26 in quarterly instalments.

Widow, aged 71, of M.R.C.S. Eng. who died in 1897. Only income £76 from investments. Pays 24*s.* a week for bed-sitting and board. Finds it very difficult to meet incidental expenses on such a small income and asked the Fund to help. Voted £18 in quarterly instalments.

Widow, aged 57, of M.D. who died in 1924. Son trained at horticultural college and has purchased a holding and bungalow, but unable to furnish the bungalow. Applicant asked for help towards this expense. £10 voted.

Wife, aged 62, of L.R.C.P. who has been in a mental hospital for 24 years. Has to support herself by cooking and pay 5*s.* a week towards her invalid daughter's board, who lives with married sister. The Fund has paid the husband's life insurance premiums for the past two years and this grant of £9 5*s.* 8*d.* has been renewed. £12 has been sent to the applicant for her own expenses.

Widow, aged 66, of L.R.C.P. who died in 1909. She and her niece have a boarding-house, but owing to the bad weather have been unable to let and are now in arrears for rates. Voted £13 as a special grant.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, 11, Chandos-street, Cavendish-square, London, W.1.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some of the 1926 statistics of five county boroughs :—

Name of district and estimated mid-year population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Resp. diseases with influenza.	Heart disease.	Diarrhœa under 2 years.	Infant mortality.	Maternal mortality from childbirth.
Birmingham (934,300) ..	19·2	11·6	1·10	1·29	2·2	1·7	11·2	73	4·1
Leicester (241,700)	17·0	12·3	1·34	1·63	1·9	1·6	8·5*	77	3·9
Derby (136,600)	19·0	10·9	0·88	1·16	1·6	1·5	7·0	67	2·3
Stockport (125,400) ..	16·1	12·8	0·73	1·44	2·8	—	2·0	82	5·0
Walsall (102,100)	21·1	11·1	1·15	1·16	2·1	1·4	11·6	84	5·1

* Under 1 year only.

Birmingham.

Sir John Robertson mentions that an "important step has been taken during the year in the provision of a site for hospital purposes, which in extent and situation will be sufficient for generations to come, and will enable the question of hospital provision to be put on a proper basis." [1] The Registrar-General's estimate of the population given above is nearly 27,000 less than the local estimate. According to the local estimate the birth-rate becomes 18·7 and the death-rate 11·3. The infant mortality-rate among illegitimate babies was 150, and it is suggested that the Act of 1926 will enable a larger number of these infants to be adopted. Of the 574 illegitimate babies born, 72 were in institutions at the end of the year, 56 died, and 58 removed before a visit was paid. In the case of the remaining 388, the father and mother were living together in 127 cases, the father was making an allowance under an order in 41 and voluntarily in 46 cases, the father was not contributing in 150 cases, and there was no information in 24. In view of the fact that the greatest amount of sickness occurs in February and March, a leaflet was distributed by the health visitors, advising that more time should be spent outside in the winter than in the summer in order to get the maximum advantage from the available sunlight. The wards in Birmingham are divided into central, "middle-ring," and "outer-ring." The death-rate from cancer is fairly equally distributed amongst all three. A leaflet advocating early diagnosis with a view to early operation in the case of cancer of the breast was broadcasted for the second time.

Nursing in the home is provided by 13 district nursing associations, which undertake the nursing of measles, whooping-cough, and pneumonia referred to them by the public health department, at a uniform charge of 10*s.* per case. The health visitors find great difficulty in dealing with the aged poor.

Considerable efforts are being made to improve the condition of the River Tame. The opening of the new refuse utilisation plant at Tyseley in June, 1926, had made it possible to close down five tips. This policy is being extended and the percentage of tons of refuse tipped has been reduced from 34 to 12 in the last four years. Two inspectors are regularly employed in seeing that the closets and drains of courtyards are kept in good order and certain of the courtyards are cleansed periodically by a staff of men. There were 196 excessive emissions of smoke, 93 from boiler fires, 27 from boilers and furnaces, and 76 from metallurgical furnaces. Eighty-eight prosecutions were undertaken and convictions were obtained in every case. The total amount of fines was £172, and it is pointed out that the new Act raises the maximum penalty from £5 to £50. The dirt content of the air was less than the average for the preceding four years. The grit nuisance from the use of inferior fuels with a forced draught, however, is becoming intolerable, and unless more efficient grit-catchers can be devised, action will have to be taken to prevent this method of raising steam.

The houses let in lodgings on the register number 696 and have "always been the bugbear of the public health department." Very inadequately furnished, they are let at exorbitant rents to the thriftless, careless, and poverty-stricken classes.

Notwithstanding the strenuous efforts to overcome the house shortage there is great distress and inconvenience from bad housing among the labouring classes. The houses completed in 1926 numbered 6934, of which 5159 were corporation houses. During the last two years about 4400 have been built towards the arrears of the last 16 years. At the present time old, worn-out houses are allowed to remain, and industries are cramped because they cannot turn out the tenants of the dwellings, which they have purchased for works extensions. The Lower Tower Street unhealthy area was "represented" in May, 1926. It covers 11·66 acres, 10 of which are occupied by dwellings and the remainder by workshops. The dwellings number 517 and house a population of 2703.

Most of the milk-supply is delivered once daily. About half is sterilised homogenised milk supplied in bottles and about a quarter is pasteurised. Particulars are given of the bacterial examination of samples of pasteurised milk. Out of 12 holder pasteurisers the samples from three exceeded the limit of 30,000 bacteria per c.cm., while out of nine flash pasteurisers the samples from four exceeded the permissible limit. The samples from two continuous flow-retarding plants complied with the regulations. There is still a prejudice against the use of pasteurised milk, and firms which hold licences for adequate pasteurisation do not use their licences to the full by selling all their milk in bottles as pasteurised. The public do not in fact realise that most of the milk in Birmingham is treated by heat, and they therefore prefer to buy "loose" milk to *adequately* pasteurised milk in bottles. The city cowsheds house about 1550 cows and among these 21 cases of tuberculosis were found during the year and slaughtered under the order. 811 samples of milk received from outside the city were examined for tubercle, and 8·8 per cent. were found to be infected. As the result of following-up, 63 tuberculous cows were found in outside farms, 44 with advanced tuberculosis and 19 with tuberculous udders. All were dealt with under the order. The Birmingham scheme for securing tubercle-free milch cows included 22 herds and about 696 cows during the year. At the half-yearly testings 71 failed to pass the test, although the majority of the herds are breeding herds. In one breeding herd of approximately 93 cows, 28 failed to pass the test during the year.

Up to the end of 1926 1099 children had been immunised against diphtheria, and since the end of the year the numbers have steadily increased. The use of scarlet fever antitoxin in the hospital appeared to diminish the number of cases with complications, and a full account of the benefits obtained by the surgical treatment of tonsils and adenoids in the promotion of more rapid convalescence of scarlet fever and diphtheria patients and the prevention of return cases is included in the report. The tuberculosis officer, Dr. G. B. Dixon, gives excellent radiograms to illustrate the use of radiography in the differential diagnosis of pulmonary disease, and also photographs showing the progress of cases of lupus

[1] See THE LANCET, 1926, ii., 916.

and abdominal tuberculosis with sinus under light treatment. Encouraging results have been obtained at the venereal diseases centre by the use of diathermy in the treatment of gonorrhœa in the female, and the results obtained by treating acute gonorrhœa in the male with intravenous injections of vaccines "have been extraordinarily good."

Leicester.

Dr. C. Killick Millard reports that his city was visited by a serious outbreak of poliomyelitis. There were 81 cases and seven deaths. Leicester has previously only had sporadic cases of the disease. The first cases occurred early in the summer, and there were 15 cases in August, 37 in September, and 14 in October. Of the 45 patients under 4 years of age, 16 were under 2. Twenty-four cases occurred during the 5–9 age-period, 2 from 10–14, 5 from 15–19, and 5 over 20 years of age. In no instance was more than a single case notified from any one house, and in only three instances was more than one house in a street attacked. The cases were distributed throughout the city and social position appeared to have little influence upon the incidence of the disease. Of the seven fatal cases, four were of the fulminating type and were only ill four, five, and six days. Simultaneously with the outbreak in the city, there was an outbreak in the county of 69 cases, with the same want of evidence of case-to-case infection. Thirty of the cases were treated in hospital, but no members of the hospital staffs developed the disease. The disease was unduly prevalent in the country during 1926, and a chart shows that the chief prevalence in England and Wales was from August to November. Dr. Millard refers to the Edinburgh outbreak of 1910 and to the outbreak in the village of Stoke Rivers in Devon. In the former 62 cases occurred with no multiple cases in houses; in the latter 45 cases occurred within a few days in a village with a population of 119. Almost every house attacked had two or more cases, and most of the cases could be clearly linked up.

The Leicester Cancer Committee have carefully considered the establishment of a free clinic for early diagnosis, and the health committee have advised the council to establish such a clinic.

Diphtheria was unusually prevalent during 1926. There were 366 cases and 37 deaths. The mortality was highest at the age-period 5–9. The disease was widely scattered, and cases occurred at 53 schools. In 88 per cent. of the cases there was no spread of the disease to other members of the household. Dr. Millard thinks that a much stronger case could be made out for immunisation of all children against diphtheria than for vaccination, seeing that the mortality from small-pox for many years has been almost nil. He does not think, however, that Leicester with her past history would be likely to welcome immunisation against diphtheria, as it is somewhat in the experimental stage. As regards inoculation against "common colds," Dr. Millard cites the experiment carried out among the students of Manchester University, from which it appeared that the 138 inoculated students suffered from more colds than the 148 uninoculated.[2] He mentions, however, that the advocates of inoculation show that stock vaccines were used and that freshly prepared vaccines might have been of some value.

The total births were 4119, and the new cases attending the three antenatal clinics numbered 598. Orthopædic cases are already treated at Groby-road Sanatorium. It is proposed to provide there also a ward for poliomyelitis, and to establish an orthopædic treatment clinic in connexion with the school medical department. For the second year since the war the number of new houses has more than provided for the natural increase of the population, and has done something substantial towards overtaking arrears. Dr. Millard stresses the need for more playing grounds for children, especially in the more congested central areas. The ideal is for the presen population in the central parts to be rehoused in th more salubrious outskirts. Under a street improve ment scheme five common lodging-houses, accom modating 323 men, will have to be pulled down, an the present is a good opportunity for the establishmen of a municipal model common lodging-house. Th lectures for stokers have been a success; 49 wer enrolled, and the average attendance was 39.

Four severe cases of puerperal fever were admitte to the sanatorium, and two died. A beginning ha been made with the treatment of uterine sepsis b glycerine drainage.

Derby.

Dr. A. E. Brindley reports that small-pox con tinues to linger. The notified cases during 192 numbered 759, and there were no deaths. The reason given for the continuation of its incidence are failur or delay in notifying, concealment of cases, misse cases, and failure of contacts to accept vaccinatio Dr. Brindley says that no contact vaccinated withi the past 20 years has developed the disease. Oph thalmia neonatorum was slightly more prevalen There were 18 cases notified, of which 9 were treate at home and 9 in hospital. One baby died, 1 wa under treatment at the end of the year, and 1 ha removed. Of the remaining 15, 2 had impaired visio With the existing staff it is impossible to supervis the health of children between 2 years and the ag of entrance to school. A special welfare centre fo children of this age is recommended. There wer 2596 births and 247 expectant mothers visited th antenatal clinic. A large consignment of Newtow apples was found to contain gr. 1/33 of arseni per lb., or three times the amount allowed. Thes apples were twice washed and the amount of arseni was finally reduced to gr. 1/240 per lb. Thirty-seve samples of milk were examined for tubercle, and tw from outside farms were found to be infected. A long list of typical examples of overcrowding is give and also extracts from letters of application for ne corporation houses. The new houses erected durin the year numbered 1444, of which 1286 were part o a municipal housing scheme.

Stockport.

Dr. Nicolas Gebbie records an outbreak of pem phigus neonatorum in June and subsequent month Seven cases occurred in the practice of one midwif and two of these proved fatal. The midwife wen for a holiday and handed over her cases to anothe midwife, and 16 of the 28 cases which occurred wer in the practice of these two midwives. The diseas was made notifiable on Sept. 2nd, and from tha date until March 1st only seven cases were notifie four of which occurred in the practice of a third mid wife. With the exception of the two fatal cases, th type of disease was mild. There is a serious shortag of houses, but no case of dangerous overcrowdin was brought to the notice of the medical officer o health during the year. A table shows that th population during the last ten years has been almos stationary. In September an official representatio of an unhealthy area was made. Out of 12 sample of milk examined for tubercle one was found to b infected. As a result of following up, two cows wer surrendered and destroyed. There were 24 notifica tions of ophthalmia neonatorum, and one baby bor in the municipal maternity hospital lost the sight o an eye. The births numbered 2014. An antenata clinic was opened in 1925 and attended by 61 mother During 1926 130 expectant mothers attended. Dr Gebbie makes an urgent recommendation for th appointment of an assistant medical officer wit special experience in maternity and child welfar work.

Walsall.

Dr. J. A. M. Clark, in drawing attention to th housing shortage and consequent overcrowdin mentions the fact that Walsall is the town with th ninth largest average family (4·61 persons) in Englan and Wales according to the 1921 census. Fou

[2] See THE LANCET, 1927, i., 834.

undred and sixty-eight new houses were built uring the year, 374 by the local authority. The ouncil do their best to encourage graded milk by btaining Grade A and Grade A (tuberculin-tested) ilk for the free issue to mothers. Diphtheria was ery prevalent in the infant department of one chool and 88 children received a full course of immu-ising doses. The privy conversion scheme makes rogress. At the end of the year there were 520 rivies, 10,498 water-closets with a proper flush, 260 water-closets which have to be flushed by a ucket, 85 waste water-closets, and 25 pail-closets. n automatic atmospheric pollution recorder has een installed. During the winter months atmo-pheric impurity is greatest at 7 A.M.; decreases etween 9 and 10 A.M.; is more marked again between and 6 P.M., and decreases after midnight.

Midwives attended 1617 out of the 2104 births 76·8 per cent.) and sent for medical help in 243 cases, f which 84 were in respect of ruptured perineum. Dr. lark describes these figures as startling, and says that oth midwives and medical men called in by them how an equal unwillingness to allow Nature to take er course; there is too great a readiness to adopt nstrumental methods. The inspector of midwives, ho is herself a midwife, conducts the antenatal entre. According to circumstances, the abdomen s examined, the fœtal heart is listened for, pelvic easurements are taken, and the history of previous ifficult labours is recorded; the urine is examined, dvice is given about the hygiene of pregnancy, and he patient is referred through the midwife to her wn doctor when difficulty is anticipated; 130 others attended this centre. In his school report r. Clark draws attention to the bad print of some f the text-books and to school desks of obsolete attern which are too small for the children who se them. Defective vision, spinal curvature, and ound shoulders are possible sequels. He finds that any children have already acquired a squint before ttaining school age. An orthopædic clinic has been stablished, conducted by Mr. G. Percival Mills. here are 214 children on the list between the age f 5 and 16 suffering from crippling defects (including evere heart disease). The open-air school has had nother successful year with an average attendance f 92. A permanent site has now been obtained for he school camp, and for five week-ends and one full eek parties of boys from many schools enjoyed a real oliday under canvas.

PORT SANITARY AUTHORITIES: HULL AND GOOLE.

Dr. W. Allen Daley states that in spite of the coal ispute the trade of the port increased during the ear. Over 12,000 vessels entered, of which 9 per ent. had sanitary defects. There were 490 insanitary (dirty) forecastles and 165 dirty food-lockers; 246 resh-water tanks needed cleaning; 161 water-closets ere choked; and on 41 ships the quarters were erminous. It is difficult to deal with infestation, and is stated that the only remedy is to dismantle he parts affected, burn the old wood on board, and fit. Fumigation with sulphur is effective only hen it is followed by another fumigation 10 or 12 days ter, when the larvæ have hatched out. It was ever necessary to issue statutory notices; hints ere sufficient. Parts of vessels were disinfected ter infectious diseases with 4·5 per cent. of formalin ray or with sulphur. A ship which had landed case of yellow fever on May 8th at Barbados was migated on the same day, again on May 22nd at orfolk, Virginia, and again at Hull on Sept. 8th, is time with formalin, so that no mosquito was kely to survive. No case of cholera, plague, or ellow fever was dealt with; 68 cases of venereal sease were found on board ships on arrival. It is ing discussed whether the duty of killing rats ove high-water mark falls on the city or on the rt sanitary authority; meanwhile 11,333 were counted for in 1926, 8810 of them from ships and from trawlers. Ships from plague-infected ports are required to have rat-guards on their hawsers or to keep themselves three feet off the quay and to cover their hawsers with three feet of fresh tar. Traps are set on board, but not poison baits. Plague was never found among the 632 rats specially examined. There is risk in rat-catching, but overalls and gauntlets are worn, and the fleas on the dead rats are killed by immersion in paraffin. Forty-four vessels were fumigated and some seven rats killed on each. Three pounds of sulphur are burned per 1000 cubic feet, the time of exposure being six hours for the United States and eight for Australia. The port analyst examined 34 samples of water from ships and only 26 were satisfactory. Of the 8357 aliens who arrived, 7283 were transmigrants and were all clean; 259 were certified on account of trachoma, favus, and other infections. Food inspection at Hull is very important, covering 40 per cent. of the imports. Arsenic was found on apples that had been sprayed to prevent growth of the codling moth; it was almost exclusively external. Dealers were advised to brush the stalk and calyx before sale, when there would be no danger if the apples were peeled. The largest amount of arsenic was 0·023 grains per lb.; the amount considered safe is 0·01 gr. Four hundred tons of fruit was condemned and sent to the destructor; the small quantity of meat products condemned was commercially utilised. The report was largely compiled by Dr. E. J. Clark (assistant M.O.H.).

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 3RD, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 111 (last week 166); scarlet fever, 1461; diphtheria, 815; enteric fever, 104; pneumonia, 380; puerperal fever, 40; puerperal pyrexia, 93; cerebro-spinal fever, 4; acute poliomyelitis, 38; acute polio-encephalitis, 3; encephalitis lethargica, 35; continued fever, 1; dysentery, 6; and ophthalmia neonatorum, 92. No case of cholera, plague, or typhus fever was notified during the week.

Deaths.—In the aggregate of great towns, including London, there was 1 death from small-pox, 1 from enteric fever, 13 (1) from measles, 2 (1) from scarlet fever, 18 (5) from whooping-cough, 22 (1) from diphtheria, 52 (11) from diarrhœa and enteritis under two years, and 18 (2) from influenza. The figures in parentheses are those for London itself.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A fortnight's course in medicine, surgery, and the specialties will start at the Westminster Hospital on Sept. 19th. On the same date the Royal National Orthopædic Hospital begins a fortnight's course occupying the whole of each day. From Oct. 3rd to 15th a course in cardiology will be held at the National Hospital for Diseases of the Heart; the daily sessions will be from 10 A.M. to 4 P.M., and entries are strictly limited to 20. From Oct. 3rd, for three weeks, there will be a course at the Central London Throat, Nose, and Ear Hospital; it will be divided into two parts, which may be taken together or separately. The clinical course occupies all day from 9 A.M., whilst the operative surgery class (practical) lasts from 10 to 11.30 A.M. daily. There will also be a practical course in peroral endoscopy. The operative and endoscopy classes are strictly limited. Prof. Louise McIlroy will hold a course in antenatal work at the Royal Free Hospital on Fridays at 5 P.M. from Oct. 7th to 28th. It will be open to ten post-graduates only, and the fee will be £5 5s. At the same hospital, on Wednesdays, at 5.15 P.M., from Oct. 12th to Nov. 2nd, Dr. C. B. Heald will give lectures and demonstrations in electrotherapy. Other courses will be given at the Chelsea Hospital, the Royal Eye Hospital, the London School of Hygiene and Tropical Medicine, and the Paddington Green and Victoria Hospitals for Children. A two months' course in neurology at the National Hospital, Queen-square, also starts on Oct. 3rd, consisting of attendance at the afternoon clinics at the hospitals and certain special lectures. Copies of all syllabuses and of the general course programme are obtainable from the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1, and will be sent regularly to applicants if desired.

Correspondence.

"Audi alteram partem."

POOR-LAW HOSPITALS.

To the Editor of THE LANCET.

SIR,—I read with great interest the excellent letter of Dr. H. J. Bailey in THE LANCET of Sept. 3rd last, concisely pointing out the value of the Poor-law hospitals as they are at present and the extremely important uses to which these institutions might be put. I wish to add a few comments.

As regards medical research, Dr. Bailey mentions the unique and varied material to be found at our large infirmaries. It seems to me that much extremely valuable information regarding certain forms of treatment and the results thereof could be obtained if the necessary statistics were collected from the infirmaries by some central authority such as the Ministry of Health. By this means the large number of cases necessary to obtain statistics of any value could be obtained in a very much shorter period than would be necessary were the cases collected, as is usual at present, by individual effort in voluntary hospitals.

A further point arises in connexion with the use of the Poor-law hospitals for teaching purposes. Would they not be extremely valuable, especially in some of the large provincial towns, for post-graduate instruction? The importance of post-graduate teaching is steadily being recognised, and if the Poor-law hospitals were used for this purpose it would give the post-graduate a teaching school apart from that of the undergraduate.

In order to attain the most efficient treatment of the sick the Poor-law hospitals should be assisted in their process of evolution, which has been very rapid of recent years. A sufficient and efficient medical staff must be provided, and, as Dr. Bailey points out, encouragement offered for work of a professional rather than of an administrative nature.

I am, Sir, yours faithfully,

G. P. B. HUDDY, M.S., F.R.C.S.

Dudley-road Hospital, Birmingham, Sept. 10th, 1927.

A CASE OF CEPHALIC TETANUS.

To the Editor of THE LANCET.

SIR,—The case of cephalic tetanus described by Dr. W. Fletcher and Dr. J. P. Fitzpatrick in THE LANCET of Sept. 10th is, of course, interesting. It had been more interesting had we been told of the treatment adopted. Antitoxin, magnesium sulphate, tracheotomy—any or all of these might have helped, and, with an incubation period of ten days, ought to have helped a little. This type of tetanus was described under the title of "Kopftetanus" in the last century, and was well known when I was a student. A case was described as occurring in Norwich in 1837.

I recall that on entering private practice in Sydney—now over 21 years ago—I saw, within a fortnight, two cases, both in stable-lads, and with an incubation of 14 and 12 days respectively. Both gave histories of facial abrasions, both evidenced facial paresis, and both had modified trismus. Thanks to the teaching of my late clinical lecturer, Dr. W. Camac Wilkinson, I immediately made a diagnosis and exhibited antitoxin; both recovered. An excellent account of this variation of classical tetanus, with many cases similar to that recorded by your contributors, and a full table of references, is to be found in Allbutt and Rolleston's "System of Medicine," 1911, Vol. I., pp. 1039 et seq.

Your contributors say that the condition is very uncommon; it is certainly very rare in any one man's experience, but East of Suez it should ever be in the medical mind.

I am, Sir, yours faithfully,

MACNEILL SIMPSON, M.B., M.Ch. Syd.

Hove, Sussex, Sept. 12th, 1927.

AN EXPLANATION OF THE FORMATION OF WHITE CLOT WITHIN ANEURYSMAL SACS.

To the Editor of THE LANCET.

SIR,—The origin of the white clot found i aneurysmal sacs has always been a mystery to m and the explanations given in text-books have nev been fully satisfactory. The explanations generall given is that the blood clots in the ordinary wa and the corpuscles are subsequently dissolved ou leaving behind a white clot. One other explanatio is that red blood corpuscles are whipped out of th blood by the force of the circulating blood. Regardin the disappearance of the red blood corpuscles fro the clot there never has been reported an invasio of the clot by white blood corpuscles or other phag cytes. Another explanation given is that the re blood corpuscles are dissolved by a ferment, but the is no proof of this. Recently I performed an obliterativ endoaneurysmoraphy of an ileofemoral aneurysm.

The patient was 55 years old, and the duration of th aneurysm was one month. The aneurysm was of the fusifor type, and the extent of the vessel affected was more tha 2 inches. It was the size of an orange, and it pulsate violently. After controlling the common iliac and th external iliac on the same side transperitoneally, and th inferior epigastric in the abdominal wall, the aneurys was incised. The time that elapsed between the control the vessels and the opening of the sac was not more tha five minutes. To my surprise, as soon as I incised the sa clear yellowish fluid escaped, followed by blood. Th amount of this clear yellowish fluid I estimate was abou between 3 to 4 oz. On further opening the sac I foun that it was lined by a yellowish clot about one-eighth an inch thick. This had quite a glistening appearanc The proximal opening was situated about one inch abou the inguinal ligament, and the distal opening was at th bifurcation of the common femoral. The operation whic followed was along the usual lines. The clear yellowis fluid that escaped I take to be blood plasma, and this wa in contact with the sac wall, inasmuch as it escaped soon as the sac was incised. Whenever this plasma clots, fro whatever cause, it will necessarily produce a yellowish clot

While talking about this case a colleague mentione that he had seen a gluteal aneurysm opened unde the impression that it was an abscess. In that cas also clear fluid escaped first, and blood spurted ou afterwards. Surgical aneurysms are not common i Bombay, this being the only case I have had durin three years. I should like to know whether suc clear fluid has been seen to escape on incising aneurysm in the living subject.

The origin of the plasma in the aneurysmal sa may be explained as follows. The pulsation of a aneurysm is admittedly due to ventricular contractio During each diastole the aneurysm shrinks, and durin each systole it expands. During the diastole th aneurysm does not completely empty itself; ther is still a fair amount of blood left in the sac. Eac systole adds to this, and during diastole this adde portion escapes back into the artery by the elasti recoil of the aneurysmal sac and its surrounding The portion of the blood contained within the sa most affected by the entry and the exit of bloo therefore, is that portion which lies towards th centre of the sac and near the opening in the arteria wall. The portion of blood lying in contact wit the sac wall, and also a portion of variable dept from it—namely, that portion of blood which i contained in the sac at the commencement of systole— is merely pushed back and forth by the ingoing an outgoing blood. Naturally the portion that is nex to the opening will be affected more than that portio which is lying against the sac wall. This blood ha only back and forth movement; a certain amount c churning probably occurs in the central portion For practical purposes, then, this blood is out of th circulation; the nearer we approach the sac wa the more it is so. The blood is stagnating with onl a back and forth movement; in stagnant bloo which is not in an easily coagulable condition th corpuscles tend to settle down; the back and fort

movement may even help this settling down owing to the inertia of the corpuscles; after the corpuscles have settled down plasma alone is left, and this plasma shall be more free of corpuscles the nearer it is to the sac wall; it was this plasma which I saw escape from the aneurysm as soon as I incised it and the pale yellow clot found on the wall of the aneurysm sac was derived from this plasma.

I have had diagrams made which illustrate roughly what I think happens within the sac. One shows how the motion diminishes from the centre to the periphery, the short undulations showing marked movement, and longer undulations showing less and less movement of a churning or mixing character. Another shows the condition of the contained blood. My friend, Dr. V. N. Shirodker, kindly drew the diagrams. I am, Sir, yours faithfully,

Bombay, August 20th, 1927. S. R. MOOLGAVKAR.

*** The diagrams were too rough for reproduction, but in essentials illustrate the theory.—ED. L.

REGULAR MEDICAL EXAMINATION.

To the Editor of THE LANCET.

SIR,—The outstanding success of the modern practice of medicine is in the direction of preventive measures based on a wider knowledge of the natural history of disease. This is far more evident in the case of the public health services than in the everyday relation between the individual citizen and the practising physician, even though in the former case the new knowledge is being but imperfectly utilised.

The public continue to regard the doctor as one who heals rather than as one who teaches, and to seek his aid in times of trouble.

We suggest that the great insurance companies, or some other organisation in this country, might help to remedy the deplorable state of the public mind in this respect by arranging regular medical examination facilities for families. A start has been made by prominent insurance companies in the United States (and in our own country by two leading offices), who arrange for the free periodic examination of their policy-holders and thereby encourage the individual to seek at regular intervals medical instruction on the preservation of his health and so provide an invaluable opportunity for the discovery of any early signs of bodily disorder. In 14 years, as the result of regular medical examination, the extension of life amongst its policy-holders has been increased by the Metropolitan Life Insurance Company of New York by nine years, compared with four and a half years among the general population. Defects in habits of living were found in 99 per cent. of those examined.

But since, as a rule, only the adult male members take out life policies, provision requires to be made for the examination of the mothers, adult females, and children.

Such a policy might also cover, above an agreed figure, special medical and surgical expenses incurred by the family. There is a very large family class to whom the expense of expert medical services is very crippling and often prohibitive. Such investigation, advice, and treatment would thus be secured in the early stages of disease. The usual course adopted is to seek such aid as a last resort—generally too late to be of any use.

It would serve also to encourage timely visits to the family practitioner, who is too often called in only when the malady is well established.

We have the honour to be, Sir, yours truly,

WILLIAM MILLIGAN, M.D., J.P.
A. ENGLAND, C.M.G., D.S.O., M.P. (Colonel).
LEONARD WILLIAMS, M.D.
S. H. BELFRAGE, M.D.
ELIZ. M. SLOAN CHESSER, M.D.
IVO GEIKIE COBB, M.D.
B. B. ORMEROD,
(Director, Family Medical Services, Ltd.),
1, Princess-street, Manchester (temporary address),
Sept. 10th, 1927.

THE VITAL STATISTICS OF 1926.

THE Registrar-General's review,[1] as is well known, is now issued in three volumes. While this makes for convenience in handling, it involves the awkward necessity for references when Part III. containing the explanatory text appears. The volume here reviewed is Part II., which deals with the chief crude figures relating to population, to marriages and births, deaths being dealt with in Part I. Part II. gives also marriage-rates, birth-rates, death-rates, and infant mortality-rates for each administrative area One table (14 in Part I. and E in Part II.) deals with these matters jointly, and is for convenience printed in both parts. Thus Part II. deals with deaths, but is not the part to be consulted as to deaths. Further medical statistics are given in Part I. already published, and the important text dealing with these and allied matters may be expected later.

The outstanding feature of the vital statistics is the continuing decline of the natural birth-rate. Apart from war years, it was in 1926 the lowest on record, and in fact has now fallen to the war level of 17·8 per 1000 of population. This reduction in the birth-rate has now reached a stage at which the actual number of births in England and Wales is as small as in the year 1860 when the population was only one-half of its present magnitude. This striking reduction in births, which this country shares with many other Western countries, is the most outstanding feature of the social history of the people. It is on a magnitude which is only compensated for to a minor degree by the low general death-rate and the remarkably low rate of infant mortality. The general death-rate was 11·7 per 1000 of population, while the infant deaths per 1000 births were 70.

In preceding comments [2] on our national statistics we have drawn attention to the relatively unfavourable statistics of the north of England, where, for instance, the infant mortality-rate in 1926 was 84, and in Wales 71, as compared with 64 in the Midlands and 58 in the south of England. The explanation of this difference is not to be found chiefly in climatic or in industrial conditions, but more in a lower standard of housing and of methods of life generally. In the rural districts of the north a similar difference is manifest, the infant death-rate in the rural districts of the north being 72, as compared with 50 in the south. We note among the individual sanitary districts in which the infant death-rate was exceptionally high the following: Wokingham 133, Linsdale 138, Hoole 155, St. Ives 140, Harrington 131, Alvaston 167, Newent 118, Lydd 173, Abram 131, Hindley 138, Rainford 172, Trawden 139, Worsley 129. The list might be extended easily, and in regard to some of those named above the data on which the mortality-rates have been calculated are scanty. But making due allowance for this, and remembering the need in each instance to ascertain the death-rates for each area in other years, it is evident that vast differences in infant mortality continue, and that the scope of child welfare work is far from exhausted.

[1] The Registrar-General's Statistical Review of England and Wales for the Year 1926. Tables, Part II., Civil. H.M. Stationery Office. 5*s*.

[2] THE LANCET, August 13th, p. 348.

SEVENOAKS HOSPITAL.—Sir Charles Wakefield, who was a passenger in the train which recently met with disaster at Sevenoaks, has given £1000 to the Sevenoaks and Holmesdale Hospitals, "in recognition of the great services rendered by the medical and receiving staff to the unfortunate victims of the accident."

LONDON HOSPITAL.—Through the generosity of Sir Harry Mallaby-Deeley a new massage and electrical department is to be erected at the London Hospital at an estimated cost of £13,500. Unlike St. Thomas's and St. Bartholomew's, the London Hospital has no coat-of-arms and the committee feel that this must be rectified in view of the importance of the institution.

Obituary.

WILLIAM THELWALL THOMAS, M.B.E., CH.M. LIVERP., F.R.C.S. ENG.

Mr. Thelwall Thomas, who died suddenly at his home near Liverpool on Sept. 10th, was a surgeon of unusual ability whose talents were used generously on behalf of his patients and his colleagues. On the General Medical Council he represented the University of Liverpool, where he was for many years professor of regional surgery, and his recent re-election to the Council of the Royal College of Surgeons of England testified again to the esteem in which he was held by the profession.

Born at Liverpool in 1865, William Thelwall Thomas was educated at the Liverpool Institute and

MR. THELWALL THOMAS.

[*Photograph by Elliott and Fry, Ltd.*

studied medicine at Glasgow Royal Infirmary and University College, Liverpool. Even as a student his ability was outstanding and at Liverpool he was singled out by Sir William Mitchell Banks to assist him as demonstrator of anatomy. Qualifying in 1886, he served for a time as assistant to a practitioner in Wales, and it was then his intention to enter general practice; but after resident appointments at Liverpool Royal Infirmary he reversed this decision in favour of a surgical career, for surgery at this time was making great advances, and his natural bent was towards operative work. He was elected Holt Scholar in anatomy at University College, Liverpool, in 1887, and shortly afterwards became assistant lecturer and demonstrator in anatomy in the University. In 1890 he took the Fellowship of the Royal College of Surgeons and settled down as a consultant in Hope-street, not attempting to combine surgical work with general practice as was generally done by his contemporaries in the North of England. It was not long before his skill began to win the confidence of medical men in the city. Elected assistant surgeon to the Royal Infirmary in 1892, he soon distinguished himself as a rapid and resourceful operator and as a sound diagnostician, and these qualities, together with tremendous industry and unfailing optimism brought him eventually one of the largest surgica practices in the provinces. This well-merited succes sprang also from his competence as a teache Starting at Liverpool at a time when the few surgeon of the city spent almost all their time in privat work, Thelwall Thomas early took a prominent plac in the work of the medical school. At first he taugh many subjects; later, as the school developed, th field of his activities narrowed. From being lecture in practical surgery he was in 1913 appointed professo of regional surgery in the University, and on retirin from this chair in 1922 became emeritus professo As a teacher, he was both admired and liked. Hi manner was direct and genial and his relation with students were always friendly.

In 1907 Mr. Thomas became full surgeon to th Royal Infirmary, and he retired from the hospita staff as consulting surgeon only two years ago. I 1909 he was given the honorary degree of Master o Surgery by the University, and when the Britis Medical Association went to Liverpool in 1912 h was appointed general secretary of the meetin presiding over the Section of Surgery in the followin year when the Association met at Brighton. In 192 he was elected a Councillor of the Royal College o Surgeons of England, and at the beginning of las year he succeeded to the late Dr. Richard Caton seat on the General Medical Council. With S Berkeley Moynihan, Sir Robert Jones, and Sir Harol Stiles, Thelwall Thomas was one of the founders o the Chirurgical Club, whose excellent object was t travel and see the work of other surgeons. Especiall as an example, this club has borne much good frui He was a writer on many topics, including hospita administration and finance, and continued his co tributions to the literature of surgery over man years. During 1918–19 he held office as President o the Liverpool Medical Institution.

We have received the following appreciation fro Mr. Frank Jeans:—

"Thelwall Thomas was above all the doctor surgeon. He used to say he was the first in Liverpo to 'toe the line.' This meant that in the transitio period, when Liverpool was to change from being large town in which one or two men with a reputatio for surgery could in addition to general work carr the surgery of the town and half a dozen counties o their backs, to being a big centre of medical educatio which could support its pure consultants by th dozen, Thelwall Thomas by his courage and acume gave the impetus. He had an exceptional chance bu it is only fair to say that he had more—th exceptional ability to seize it and thus become for a allotted span the leading surgeon of the city. H was delightful to students and very human to patient and his sincerity made an acquired bedside manne unnecessary. He said his certainty of diagnosis wa acquired by the coaching he had to do in his earl days in order to enter the ranks of the consultant He certainly realised that dogmatism was practicall a necessity in a consultant who is called in to decid And the tremendous faith instilled into his patient was because he was so sure of himself. He was a illustration of Bland-Sutton's view that most goo surgeons are quick. Thomas was both quick a making up his mind, which was volcanic in its powe of seeing the kernel of any question and quick i executive and operative power. Brimful of energ and with an immense capacity for work his servic in holding the medical school together during th war were perhaps not fully appreciated. Only serious illness just before the war prevented hi from going overseas.

"When one has known a man as a teacher, colleagu and a friend for a quarter of a century it is difficult t separate one's affection for the man from one admiration for him as an artist, but of the tw surgeons who were privileged to be associated wit him as juniors neither will yield to the other i admiration of Thelwall Thomas as a chief. He die

as he would have wished and as he had lived and worked—quickly. He had few hobbies except of an intellectual and indoor nature, and as his main interest was surgery one wondered what he would do if ever, as seemed unlikely, he were to retire. The problem has been solved by a higher and perhaps kindlier hand."

Mr. Thomas married Miss Anabel Spence, daughter of the late Mr. Alexander Spence, of Aberdeen. She died two months ago after a long illness, and there is no family.

JOHN JOHNSTON, M.D. EDIN.

THE death is announced from Blackpool of Dr. John Johnston, who was for many years a practitioner in Bolton and was at one time president of the Bolton and District Medical Society. Born at Annan in Dumfriesshire 74 years ago, he got his early schooling at the Annan Academy and then went on to the University of Edinburgh, where he graduated in 1874. In the same year he was appointed house surgeon to the West Bromwich District Hospital, and after a further period as resident medical officer at the Birmingham and Midland Hospital for Sick Children, proceeded to the M.D. degree with honours and settled in Bolton. Here he soon had a large practice; he joined the honorary staff of the Bolton Infirmary and was widely recognised as a capable surgeon. Outside his medical work he directed his attention especially to the training of railwaymen in ambulance work, and the usefulness of his teaching was recognised by his being made an honorary associate of the Order of St. John of Jerusalem with the award of a gold medal for long service. In addition, Dr. Johnston held the King George Coronation Medal and a special badge given in recognition of two years' war service as medical officer at Queen Mary's Military Hospital, Whalley, and two years service at Townleys Hospitals, Bolton. Nine years ago he gave up practice and went to live in retirement at Bispham, Blackpool. He was now able to give more time to the literary work which had largely filled his leisure for many years, and he was elected president of the Blackpool Literary and Scientific Society. Amongst his works, which are chiefly poetical, is one describing a visit which he paid to Walt Whitman in 1890. He also wrote accounts of travels in Egypt and Palestine. A memorial service to Dr. Johnston was held at Blackpool on Sept. 5th, and he was buried at Annan on the following day. He leaves a widow.

CUTHBERT CHAPMAN GIBBES, M.D. ABERD., M.R.C.P. LOND., D.P.H.

THE death is announced on August 24th of Dr. C. C. Gibbes, consulting physician to the National Hospital for Diseases of the Heart, at the age of 77. He was the son of Heneage Gibbes, M.D., and received his education at Wimborne Grammar School, the University of Aberdeen, and Westminster Hospital. As soon as he had taken a medical degree he went out to Jamaica for a year as resident medical officer of Kingston Hospital, and on returning to England he took up a similar appointment at the East Devon and South Cornwall Hospital. During the years that followed he gained wide experience as surgeon to the London and South-Western Railway, medical superintendent of Tolworth Hospital for Infectious Diseases, and clinical assistant at Brompton Hospital. On joining the medical staff of the National Hospital in 1897 he set up in consultant practice in London and contributed numerous papers on cardiology to medical journals, including an account of collective investigations of 11,000 recruits with doubtful cardiac conditions. After the war he was appointed consulting cardiologist to the Ministry of Pensions for East Hampshire and the Isle of Wight. Dr. Gibbes's principal recreation was botany, and he was a Fellow of both the Linnean Society and the Chemical Society.

WILLIAM DAVID ADAMS, M.B., C.M. EDIN.

Dr. W. D. Adams, who died on August 28th, was a well-known practitioner in South Norfolk and was medical officer for the Kenninghall district, and for the Thetford and Wayland Unions. Fifty-eight years of age, he was the son of the Rev. David Laird Adams, professor of Hebrew and Oriental languages in the University of Edinburgh. He was educated at George Watson's College, Edinburgh, and after taking an Arts degree at the University, began the study of medicine, winning the Thomson Bursary. On graduation in 1894 he passed into the Navy and served for several years at Haslar and at sea, but in 1899 he left the Service and settled in private practice at Kenninghall. Dr. Adams married the daughter of Mr. P. K. Blofield, of Quidenham, and she survives him with three daughters and a son. His brother is Dr. H. F. W. Adams, of Cirencester.

EDITH NEILD, M.B. LOND., L.R.C.P. EDIN.

Miss Edith Neild died on August 29th at Hartfield after a long period of poor health. Born at Plymouth 53 years ago, she was the eldest daughter of the late Dr. Frederick Neild, and went to Tunbridge Wells with her parents at an early age. She received her medical education at the School of Medicine for Women at Edinburgh and qualified in 1898. For a time she was connected with the London Homœopathic Hospital, but later returned to Tunbridge Wells to help with her father's practice. It was not long, however, before she acquired a practice of her own, and her services were greatly in demand. Like her father, Dr. Neild was a member of the Society of Friends and was known to a large circle outside her own neighbourhood. Her character commanded both respect and affection, and her retirement last June was greatly regretted. For over 26 years she was physician to the Tunbridge Wells Homœopathic Hospital.

Medical News.

OPENING OF THE MEDICAL SCHOOLS: ANNUAL DINNERS.—The following arrangements are announced by medical schools in London:—

London Hospital.—The Old Students' Dinner will be held at the Trocadero Restaurant, Piccadilly Circus, London, on Thursday, Oct. 20th at 7.30 for 8 P.M. Dr. Angus Kennedy will take the chair.

St. Bartholomew's Hospital.—The Old Students' Annual Dinner will be held on Monday, Oct. 3rd, at 7 for 7.30 P.M., in the Great Hall of the Hospital. Dr. Morley Fletcher will take the chair.

St. George's Hospital.—Sir Humphry Rolleston will deliver the introductory address at the hospital on Oct. 1st.

St. Mary's Hospital.—The annual dinner of past and present students will be held at the Connaught Rooms, Great Queen-street, on Saturday, Oct. 1st, at 7 P.M.

St. Thomas's Hospital.—The annual dinner of old students will be held on Friday, Oct. 28th, at 7.30 for 8 P.M., at the hospital. Sir Charles Ballance will preside.

Middlesex Hospital Medical School.—The winter session will open on Tuesday, Oct. 4th. An introductory address entitled the Paths to the Stars, will be delivered at 3 P.M. at the Queen's Hall by Mr. Victor Bonney, after which the prizes gained during the previous year will be distributed by Sir Charles Sargant, Lord Justice of Appeal.—The annual dinner will be held the same evening at 7 for 7.30 P.M., at the Savoy Hotel (Embankment entrance). Mr. Somerville Hastings will take the chair. Those wishing to be present at the dinner should communicate as soon as possible with the Secretary to the Council of the Medical School.

University College Hospital.—The annual dinner of past and present students will be held on Friday, Oct. 14th, at 7 P.M., at the Hotel Cecil. Sir George Blacker will take the chair.

Westminster Hospital Medical School.—The inaugural address will be given in the Board Room of the hospital on Monday, Oct. 3rd, at 3 P.M., by Dr. E. W. Ainley Walker,

Dean of the School of Medicine, University of Oxford.—The annual dinner of past and present students will be held at the Royal Adelaide Gallery, Gatti's Restaurant, Strand, on Saturday, Oct. 1st, at 7 P.M. Dr. de Souza will preside.

THE Lister Centenary Exhibition at the Wellcome Historical Medical Museum, 54A, Wigmore-street, will be closed on Oct. 1st. The Museum is open to visitors as follows: Monday to Friday, from 9.30 to 5.30; Saturdays, 9.30 to 1; Sundays, closed.

CONFERENCE OF GAS INDUSTRY.—Sir Russell Bencraft, M.R.C.S., will preside over the sixteenth annual conference of the British Commercial Gas Association, which will be held at Southampton from Oct. 3rd to 5th. Sir Bruce Bruce-Porter, M.D., will give an address entitled New Health: The Importance of Health in Industry.

HEALTH WEEK.—This year Health Week will be celebrated from Oct. 2nd to 8th, its object being to bring home to every man and woman in this country the importance of health and their personal responsibility for safeguarding it. The dominant idea will be "Self Help in Health." Particulars may be had from the Secretary of the Royal Sanitary Institute at 90, Buckingham Palace-road, London, S.W. 1.

SOCIETY OF APOTHECARIES OF LONDON.—The Court of Assistants has adopted the report of the Examinations Committee recommending the institution of a diploma indicating specialised knowledge of the subjects of antenatal care, midwifery, and infant welfare, and steps are being taken to institute the examinations at an early date. They will be open to registered medical practitioners, and further particulars will be published later.

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES.—In the Michaelmas term courses of lectures will be given by Prof. Alexander on Value (Truth, Goodness, Beauty); by Mr. John Hobson on Economics in Relation to Ethics; by Prof. Leonard Russell on the Approach to Philosophy; by Mr. S. E. Hooper (Director of Studies) on the Introduction to Philosophy; and by Dr. William Brown on Psychology. In the Lent term Mr. Bertrand Russell will lecture on the Philosophy of Physics and Dr. Morris Ginsberg on Social Psychology. In the summer term Prof. Clement Webb will give a course of four lectures on the Philosophy of Religion, and Prof. C. Lloyd Morgan a course of six lectures on Mind in Nature. A full syllabus can be had from the Director of Studies, 88, Kingsway, London, W.C. 2.

Appointments.

BELAM, F. A., M.D. Liverp., D.P.H., has been appointed Medical Officer of Health for Guildford Borough and Guildford Rural District, and Medical Officer to the Guildford, Godalming, and Woking Joint Hospital Board.

KING, P. A. H., M.B., Ch.B. Edin., Certifying Surgeon under the Factory and Workshop Acts for the Holt District of the county of Norfolk.

Vacancies.

For further information refer to the advertisement columns.

Alton, Hants, Lord Mayor Treloar Cripples' Hospital.—2nd Asst. Res. M.O. £300.

Brighton, New Sussex Hospital, Windlesham-road.—H.S. £50.

Brighton, Royal Sussex County Hospital.—H.S. £150. Also Hon. Surg. Clin. Asst., Hon. Clin. Asst. to Ophth. Dept., and Hon. Med. Clin. Asst.

Bristol Education Committee.—Asst. Sch. M.O. £600.

Cambridge, Addenbrooke's Hospital.—Cas. O. and Res. Anæs. At rate of £130.

Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—Sen. and Jun. H.S.'s. At rate of £100 and £50 respectively.

Dumfries, Crichton Royal Mental Hospital.—Asst. P. £350.

Dundee Royal Infirmary.—Asst. S.

Evelina Hospital for Children, Southwark, S.E.—Two H.P.'s. Each at rate of £120.

Freetown, Sierra Leone, Liverpool School of Tropical Medicine Laboratory.—Two Research Assts. Each £600.

Halifax Royal Infirmary.—Third H.S. At rate of £100.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S., H.P., and Asst. Cas. O. Each £50.

Ipswich, East Suffolk and Ipswich Hospital.—Pathologist. £650.

Jersey General Hospital and Poor-Law Infirmary.—Res. M.O. £200.

King's College Hospital, Denmark Hill, S.E.—Clin. Assts., Sen. Med. and Surg. Registrars and Sambrooke Med., &c., Reg.

Leeds City.—Asst. Clin. Tuberculosis O. £600.

London Hospital, E.—Asst. P. Also 1st Asst. and Reg. to one of the Med. Firms, and 1st Asst. and Reg. to one of the five Surg. Firms. Each £300.

London Jewish Hospital, Stepney Green, E.—Hon. M.O. for Dept. for Dis. of Skin. Also Hon. Asst. S. for Dis. of Eye.

Macclesfield, Parkside Mental Hospital.—Res. Clin. Asst. £7

Manor House Hospital, Golders Green, N.W.—H.S. At rate £200.

Middlesex Hospital Medical School, London, W.—2nd Demonstrator for the Dept. of Physiology.

Miller General Hospital for South-East London, Greenwich-road S.E.—H.P. £125.

Mount Vernon Hospital, Northwood, Middlesex.—Anæsthetist.

Newcastle-upon-Tyne Hospital for Sick Children.—Jun. H.S. At rate of £100.

Otago University and Dunedin Hospital, New Zealand.—Sen. Res. Surg. O. £500.

Oxford, Wingfield Orthopædic Hospital.—Res. Surg. O. and H.S. At rate of £200 and £150 respectively.

Prince of Wales's General Hospital, Tottenham, N.—H.S.'s and H.P.'s. At rate of £120 and £90 respectively.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Two H.P.'s. Each at rate of £100.

Rotherham Hospital.—H.P. £180.

Royal Northern Hospital, Holloway, N.—Anæsthetist. £10 10

Royal Westminster Ophthalmic Hospital, King William-street W.C.—Asst. H.S.

St. Albans, Herts, County Mental Hospital, Hill End.—Pathologist and Asst. M.O. £450–£500.

St. George's Hospital, S.W.—Asst. Radiologist. £100.

St. Mary, Islington, Infirmary, Highgate Hill, N.—Asst. M.O. At rate of £350.

St. Marylebone General Dispensary, 30, Marylebone-lane, W.—Hon. S. to Ear, Nose, and Throat Dept.

Samaritan Free Hospital for Women, Marylebone-road, N.W.—Anæsthetist. £30.

Seamen's Hospital, Albert Dock, Connaught-road, E.—Ophthalmologist.

Sheffield, Jessop Hospital (Firth) Auxiliary.—Res. M.O £175

Smethwick County Borough.—Asst. M.O. and Sch. M.O. £600

South Shields, Horton Poor-Law Institution and Cleadon Children Homes.—Asst. Res. M.O. £300.

Stoke-on-Trent, North Staffordshire Royal Infirmary, Hartshill.—H.S. £150.

Walthamstow, Wanstead, and Leyton Children's and General Hospital.—Sen. and Jun. Res. H.S.'s. At rate of £150 and £100 respectively.

Watford, Peace Memorial Hospital.—Res. M.O. At rate £150.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. and Jun. Non.-Res. H.S.'s. At rate of £150 and £100 respectively

Westminster Hospital Medical School.—University Readership in Pathology. £800.

Willesden General Hospital.—H.S. At rate of £100.

Woolwich and District War Memorial Hospital, Shooter's Hill S.E.—Hon. Visiting Obstet. S.

The Secretary of State for the Home Department gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the districts of the Bishop's Waltham, Petersfield, Portsmouth, and Newport and Ryde County Courts (Circuit No. 51). Applications should reach the Private Secretary, Home Office, not later than Oct. 1st.

Births, Marriages, and Deaths

BIRTHS.

LING.—On Sept. 7th, at Welbeck-street, W., the wife of Dr. W. H. G. Mackwood Ling, of Keighley, Yorkshire, of a son

MARRIAGES.

CRAWFORD—SCOULAR.—On Monday, Sept. 5th, at Camphill U.F. Church, Glasgow, James Paterson Crawford, M.D. F.R.F.P.S. Glasg., of Wimbledon, Surrey, to Margaret Muriel, only daughter of Mr. and Mrs. Gavin Scoular, Kilmarnock.

MCCREDIE—GRAY.—On Sept. 7th, at St. Martin-in-the-Fields, London, Peter A. McCredie, M.B., Ch.B., F.R.C.S. Edin., to Rosa Constance, elder daughter of Mr. and Mrs. W. J. Gray, Sedlescombe-road, St. Leonards-on-Sea.

DEATHS.

COX.—On Sept. 7th, at Arden, Cavendish-road, Bowdon, Cheshire, Frederick John William Cox, M.D., in his 70th year.

GLYN-JONES.—On Sept. 9th, at Vancouver, B.C., of cerebral hæmorrhage, Sir William Glyn-Jones, of Gordon-square, W.C.

IVENS.—On Sept. 11th, at Preston-drove, Brighton, Arthur Somers Ivens, M.R.C.S., L.R.C.P., late of Thorpe-le-Soken.

MACVICKER.—On August 30th, at a nursing home in Clifton, of blood poisoning contracted while attending to a patient, Charles George MacVicker, J.P., B.A., M.B., B.Ch., the dearly loved husband of Marian Churchill MacVicker, of Street, Somerset, aged 64.

MORRIS.—On Sept. 6th, Lionel Frederick Morris, L.D.S. R.C.S. Eng.

REYNOLDS.—On Sept. 9th, 1927, at White Lodge, Monken Hadley, Barnet, after a brief illness, Bryan Ellis Reynolds, M.B. Lond., M.R.C.S. Eng., son of the late Edward R. E. Reynolds, M.R.C.S. Eng.

THOMAS.—On Sept. 10th, at Verdala Tower, Allerton, Liverpool, William Thelwall Thomas, F.R.C.S. Eng.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

POINTS SUGGESTED BY RECENT INVESTIGATIONS INTO THE LATE RESULTS OF TREATMENT OF BREAST CANCER.

BY GRETTA M. WARDLE, M.B., CH.B. LEEDS.

IT is of interest and importance to analyse the reasons for the continued high mortality from cancer, in spite of increased facilities for early diagnosis and extensive operative treatment, and to try to estimate whether, as a result of extensive measures to combat it, there is any improvement, even though slight. For such an analysis it is best to take a form of cancer in which early diagnosis and radical treatment hold out some chance of permanent cure, or at any rate, considerable prolongation of life; and cancer of the breast is, in this respect, a favourable form. It is external, would be early noticeable by the patient, is easy of access relatively, and thus is one of the few situations in the body where cancer can be attacked in its early stages, that is, while it is still essentially a local disease.

The following remarks were suggested by a study of the after-histories of breast cancer cases operated on in Manchester and Leeds hospitals. Over 850 cases were dealt with in the course of the investigation, including 200 by Dr. J. Murray, of the Manchester Cancer Committee, nearly all the living patients were questioned and examined personally, while the relatives and friends of those who had not survived were in most instances interrogated.

The Information Required.

The information which is wanted for an exhaustive analysis is as follows:—

1. How many people actually die of cancer of the breast?
2. How many cases dying from cancer of the breast are operated upon? A large number of cases apply for treatment only at a hopelessly late date, or perhaps never at all.
3. Why every case is not operated on? Every case (including those in which there is gross intercurrent organic disease) has an operable stage.

At the present time it is only possible to obtain approximate data for the first two points given above. If accurate figures could be obtained, the value of statistical inquiries as to the results of treatment of breast cancer would be greatly enhanced. Moreover, propaganda should do much to lessen the number of inoperable cases, and it would be of value if its influence could be shown by a definite numerical reduction. Many sources of inquiry would have to be tapped for such an accurate survey of cancer cases, and the co-operation of all branches of the medical profession would be essential.

Deaths from Cancer of the Breast.—We want to know, in a given year, how many of the population, say, of a large town die from cancer of the breast, or are suffering from it at the time of death. This would be easy if every case so long was certified as dying of cancer, but the real cause of death does not always appear for various reasons, though the tendency nowadays is certainly much more towards openness where cancer is concerned than it was some years ago. Thus the first essential would be an attempt to get the general practitioner to certify cancer whenever possible, and in cases where he thinks that for some important reason it is inadvisable to certify that the case was one of cancer, he might be requested to notify the condition (in strict confidence without giving the patient's name) to the public health authority. The annual incidence of cancer of the breast would really be of greater value than the mortality, but this could only be obtained by compulsory certification, which at present appears to be out of the question.

Cases Operated On.—Secondly, we want to know how many of those dying of cancer of the breast were operated on and when. This information could always be shown on the death certificate—e.g., "Operation, two years and eight months," or "No operation," as the case might be. This is sometimes done now. There would be inevitable difficulty in obtaining the reason for no operation. One can only hope that the practitioner would be willing to supply the information when approached by the responsible authority.

There are many difficulties also in obtaining an exact return of all cases operated on in a city. Operations may take place in:—1. Voluntary hospitals: to these it is possible to have access for record taking. 2. Poor-law hospitals: to these also access could be obtained. 3. Nursing homes: in these are the private cases, the records of which can only be made by the surgeons themselves; it might be feasible, in a matter of public welfare, to ask them to take a note of the number of breast cases upon which they operate. 4. Some cases are operated upon by general practitioners in the early stages, usually under the impression that the case is one of non-malignant growth. 5. A number of residents may go to another town for operation, but this leakage should be small. 6. A small number may have been operated upon previous to settling in the town; these will appear as operated cases in the death returns.

There are thus six channels through which patients suffering from cancer of the breast may pass for treatment, and if we could command all sources of information the following data could be amalgamated and, in time, reviewed *qua* the results of treatment and propaganda: (1) the total incidence of cancer of the breast; (2) the reduction of the inevitable mortality in untreated cases by operation; (3) the proportion of cases operated on, showing to what extent advantage was being taken of the facilities available.

The Determination of the Effect of Propaganda: Ignorance of the Laity.

If a more ambitious result were aimed at, such as the determination of the effect of propaganda on the general public and on practitioners, the review would have to extend over some years. It would be interesting to gauge more accurately (1) the effect of propaganda on the general public in inducing them to consult a doctor at an earlier date than hitherto; and (2) the effect of urging the general practitioner to suspect cancer at the very beginning, and to send patients for a confirmatory opinion or operation without delay.

I was amazed to see, in the course of recent investigations undertaken, the amount of ignorance which the laity still display over cancer. The old idea that it is a local manifestation of a general systemic disease persists widely. The idea that a painless condition cannot be cancer is very general. It is widely believed that lumps in the breast can be removed by external applications; hence the valuable time lost by the patient trying various remedies on her own initiative or at the suggestion of a herbalist. There is also a belief that any lump or swelling in the breast occurring about the menopause is a natural accompaniment of that event, and will disappear after a while along with the other signs and symptoms. The dread of cancer and the conviction that it is incurable at any stage and by any means is the most difficult point to combat, because it seems to spring from a definite psychological outlook. Many patients know from the very first that there is something wrong with the breast, which instinct tells them is cancer, but they refuse to see a doctor because they dread having their fears confirmed. Some patients even admit that they have never palpated the breast because they knew from external appearances that something was wrong, but they could not bring themselves to confirm their worst fears by feeling for a lump. This type of mental outlook occurs in the better educated of the hospital class of patient (such as dressmakers, artisans' wives, shop assistants). It would appear that the women of the lowest class neglect to seek treatment through ignorance or carelessness rather than through fear.

The Dangers of Expectant Treatment: Inadequate Surgery.

Instances are still met with where the doctor, thinking that the tumour is simple, a hyperplasia (chronic mastitis) perhaps, but bearing in mind the possibility of cancer, orders expectant treatment, and tells the patients to come up again in three or six months' time. The patient, thinking that the condition is not serious, does not return as instructed, but only after a longer period has elapsed, and then with an advanced growth. The clinical diagnosis of early cancer as opposed to hyperplastic conditions is admittedly almost impossible even for those who have great experience in such cases. Histological examination may reveal a focus of cancer in the seat of hyperplasia. So, if a tumour of the breast is really thought to be innocent, it should be removed widely and examined, and the patient sent to hospital at once if the growth is reported malignant. Judging from some few instances met with in my recent investigations, the medical man may not have had his clinical diagnosis confirmed or refuted after he has removed a breast tumour, with the consequence that a growth recurs at the original site, and by now, probably involves the axillary glands as well, so that a case "favourable" at the outset is turned into a hopeless one. One might even go a step further, and urge that no practitioner without considerable surgical experience should operate on any breast tumour, however simple it may appear clinically, in any woman over the age of 35.

The rule formulated by the Johns Hopkins Hospital is worth bearing in mind—that of all tumours of the breast occurring in women over 35, 75 per cent. are malignant. For the sake of the 75 malignant, the 25 benign should be dealt with only by an experienced hand.

An entirely different attitude must be adopted towards clinically benign tumours in the breast of a woman of 45 than would be adopted towards a similar condition in the breast of a girl of 21. In the investigations of Leeds and Manchester cases it was found that 72 per cent. of the cases which could be definitely classified, had secondaries in the axilla at the time of operation. The universal aim must be to reverse these figures, so that at least 72 per cent. present themselves for operation at the stage when the disease is still confined to the breast. Improvement in the numbers of early cases operated on must be effected primarily by the patients themselves and, to a lesser extent, by the practitioners. In this way the general results of treatment can be definitely improved.

Results of Early Operation.

As a further encouragement to our efforts, I may briefly state here the results of treatment as determined in a recent investigation made by the Manchester Committee on Cancer, the facilities for which were kindly granted by the honorary staff and management of the Royal Infirmary, Manchester. The after-histories of 375 patients operated on for proved cancer of the breast were inquired into, and it was found that of the cases operated on when the disease was still confined to the breast, 72 per cent. are alive at the end of ten years; if cases dying of other causes than cancer are deducted, the survivors number 80 per cent. But of those cases operated on at a stage when the disease has invaded the lymphatic glands, the percentage alive at the end of ten years is only 15. The significance of these findings needs no comment.

THE STANDING NURSE.

To the Editor of THE LANCET.

SIR,—Medical men are aware of the ill-effects of standing at work. Why then, may one ask, are nurses kept perpetually on their feet when so often they might do their work better sitting? For instance, during the application of light to a lupus patch, where accuracy of application is as necessary as that it should be continuous for two consecutive hours, why should the nurse, even in quite swagger homes, be expected to do this work standing beside a couch? Where is the sense of it?

I am led to make these observations by the fact that one of the worst cases of varicose veins in the legs I have seen was in an elderly woman who had been a nurse.

The medical profession—and in this I would include such people as matrons—should lead in these matters and be an example to employers of labour.

I am, Sir, yours faithfully,

T. F. G. MAYER, M.R.C.S.

Burnham, Bucks, Sept. 15th, 1927.

THE SOLDIER'S LIFE IN GERMAN BARRACKS.

A VISIT to a barracks in Germany is reported in the *Military Surgeon* for August. The barracks was four-storied, the offices and stores being on the ground floor, and the dormitories above. These dormitories each held eight men; the walls were papered or brightly coloured with stencilled patterns, the windows had curtains, there were good pictures on the walls, the tables had tablecloths, and with their athletic trophies, books, and flowers the rooms suggested those of undergraduates rather than of soldiers. The men provide all these amenities at their own expense, but are encouraged by authority, as they now spend their evenings at the barracks in reading the books they thus have money to buy. In the rooms were wash-basins, jugs, and slop-pails, and water was laid on in the corridor. The beds were spaced out as in the United States; the men had blue checked sheets, whilst the non-commissioned officers had white. Non-commissioned officers, and men awaiting promotion, had rooms by themselves, or shared with one other; no mention is made of the "Einjähriger" of old, who had better education and served only one year. There were comfortable reading and writing rooms for the companies. Heating was by stoves and ventilation was good. The kitchen and the men's dining rooms were in buildings separate from the dormitories and the food was excellent, being cooked usually by an N.C.O. and his wife. Beer and food were sold in the canteen for "other ranks." The men have four uniforms—a tailor-made full dress uniform and three working suits for drill, gymnastics, and fatigues. The old Prussian half-boot is still preferred, as it has no laces and is readily put on and off, making it easy to rest the feet. Much importance is attached to education which helps the men to get employment on discharge. The largest class, 120 men, was learning English, taught by conversational methods. Officers travel a great deal abroad, achieving this by economising on their mess expenses, which are not to exceed 2*s.* 6*d.* daily. The men also are encouraged to travel in Germany and abroad, and they do.

FLOWERS IN THE SICK ROOM.

To the Editor of THE LANCET.

SIR,—It is, I believe, generally accepted that growing plants give off oxygen and consume CO_2, and one may perhaps assume that cut flowers do the same, to a less extent. In this case both cut flowers and plants in pots would presumably be a useful acquisition to a hospital ward or sick room, and no one seems to contest this view in the case of the daylight hours; but there is a tradition amongst nurses that both flowers and plants should be removed at night, and I have heard it stated in support of this that the chemical interchange above referred to is reversed at night, oxygen being absorbed and CO_2 given off.

Could you or any of your readers kindly tell me what the actual facts are in this matter, and let me know of any references bearing on it?

I am, Sir, yours faithfully,

August 8th, 1927. ABALONE.

*** The facts about the influence of daylight on the respiration of plants are, we believe, as our correspondent states. But it seems very doubtful whether they can in any way explain what is always a point in good nursing practice. No reasonable amount of vegetation could make a perceptible difference in the composition of the air in a well-ventilated sick room. But few people find pleasure in the atmosphere of a room which is heavy with the smell of flowers and plants. A brief contact with it is a refreshing help in sickness and a good morning stimulus is missed if flowers are left in the room all night. At night, too, they are invisible, which halves the delight they can give.—ED. L.

PUBLIC HEALTH IN MOROCCO.

IT is reported that famine and typhus in the region of Agadir are causing anxiety to the French administration in Morocco, but an article by Dr. J. Colombani in the *World's Health* for August makes it clear that such outbreaks are foreseen and can be dealt with. Marshal Lyautey, resident-general from 1912 to 1925, recognised the doctor in a colony as an agent of penetration, pacification, and conciliation, and appointed a medical man as director of health and medical supply. Under him are 45 army doctors, most of them in the frontier zones, and 85 civilians, usually in the towns. These staff the hospitals throughout the Protectorate. Fifteen mobile military medical columns, each with a doctor, carrying drugs, serums, and vaccines, are sent through the less settled districts as arranged by the provincial health officers, and are available in emergencies such as the present. Much attention is given to malaria and typhus; there is an antirabic institute; the health of the ports is safeguarded, and there are four tuberculosis dispensaries with a specialist in charge. Madame Lyautey originated child welfare work in Rabat and it has spread all over the country; antenatal clinics, maternity hospitals, infant clinics, milk stations, creches, and preventoriums against tuberculosis are in full swing, and midwives are being trained.

Medical Diary.

LECTURES, ADDRESSES, DEMONSTRATIONS &c.

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FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

THE LANCET

No. 5430. LONDON, SATURDAY, SEPTEMBER 24, 1927. CCXIII.

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Remarks
ON
PULMONARY SYPHILIS.*

BY FRANK E. TYLECOTE, M.D., D.P.H. MANCH., F.R.C.P. LOND.,
HONORARY PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY; LECTURER IN CLINICAL MEDICINE IN THE VICTORIA UNIVERSITY OF MANCHESTER.

THE very existence of pulmonary syphilis, except in infants, is denied by some authorities. Syphilologists regard it as common, but tuberculosis physicians think it is very rare or non-existent. Yet in this, as in many other things, I hold with Ovid that *in medio tutissimus ibis*.

When Sir James Kingston Fowler published in 1898 the first edition of that most valuable text-book of chest diseases, Fowler and Godlee's "Diseases of the Lungs," he could only find in the museums of the London medical schools 12 examples, two of them doubtful, of acquired syphilis of the lungs. He therefore regarded the condition as a very rare one indeed, but it must be remembered that he was dealing only with post-mortem specimens, and that the Wassermann reaction had not then been discovered.

I describe here 16 cases, 12 of them from my own experience; I have seen many more, but I have never attended a post-mortem on a known case of pulmonary syphilis. This goes to show that any estimate of incidence made on post-mortem results alone is highly fallacious.

There are two specimens of pulmonary syphilis in the Manchester University museum, one from the Delépine and one from the more recent collection. Dr. R. C. Kirkwood (U.S.A.) published last year [1] in the *American Review of Tuberculosis* an article on the diagnosis of pulmonary syphilis,† in which he discusses the association of pulmonary syphilis with pulmonary tubercle, and concludes that it occurs in 1 out of 11 of all sanatorium cases in America. An interesting contrast appears between an intravitam study written since the Wassermann test came into common use and Fowler's post-mortem figures.[2]

A county tuberculosis officer of my acquaintance detected 12 cases in 8000 patients seen by him in eight years—i.e., 0·15 per cent. He agrees with me that the percentage will be much higher when the Wassermann test becomes the rule in all negative sputum cases, as well as in atypical positive sputum cases. I estimate the incidence at about 1 per cent. of the sanatorium cases in this country, and it is interesting to see that two observers in other countries give figures which support this. J. T. Conner did post-mortems on 112 syphilitic cases in America,[3] and found it in 10 per cent.; he excluded tubercle in all of them. Petersen [4] did post-mortems in 88 syphilitic cases in Copenhagen, and found it in 11. The National Council for Combating Venereal Disease (British Social Hygiene Council) stated that syphilis affects 1 in 10 of the hospital population of the country. If this figure and those of Conner and Petersen are accepted, the estimate of 1 per cent. is probably correct.

A classical case was recorded by the late Dr. R. J. M. Buchanan, of Liverpool [5]; she went the round of the Manchester physicians, and was 19 years under observations before he made the correct diagnosis by finding spirochætæ in the sputum. She was known as the "girl with the ducks in her chest." Another case reported by Buchanan was one of the earliest cases of syphilitic lung, in which the effect of antisyphilitic treatment was demonstrated by periodic X ray plates.

Of the 16 cases of whom I have notes, 11 were male and 5 female. The average age of the males was 50·82 years and of the females 47·00. The chief reason for this advanced average age is that fibrosis is the main feature and takes time to develop.

* The substance of a post-graduate lecture delivered at the Manchester Royal Infirmary.

† See abstract in Tubercle of Dec. 1st, 1926.

PATHOLOGICAL CHANGES.

1. *Infantile pulmonary syphilis* has been well investigated and occurs in two forms:—

(*a*) Interstitial or white pneumonia of the fœtus, where the alveolar walls are infiltrated, and the alveoli blocked with desquamating epithelial cells. The condition is incompatible with life for more than a few hours.

(*b*) Gummata alone or combined with (*a*). The children are usually stillborn and exhibit other syphilitic lesions in which spirochætæ are found.

2. *Acquired pulmonary syphilis* has five forms:—

(*a*) Syphilis pulmonum, a combination of areas of fibrosis starting from root or base, possibly with ulcers of trachea, larynx, or bronchi, sometimes with resultant bronchiectatic or gangrenous cavities, with or without gummata (which are rare in adults).

(*b*) Chronic interstitial pneumonia due to syphilis; a generalised condition; a fibroid phthisis in a syphilitic subject; not tuberculous.

(*c*) Syphilitic gummata.

(*d*) Lesions due to deficient blood-supply, the results of syphilitic arterio-sclerosis, with infarcts, pulmonary emboli, serofibrinous pleurisy.

(*e*) A pulmonary arterio-sclerosis with great œdema, described by Sir Leonard Rogers among Bengalese of 20–40 years of age, chiefly females.[6] He believes it to be specific in origin.

The Delépine specimen came from a female, aged 36, and shows fibrous induration largely replacing the tissue of the right lung, in which there are also bronchiectases and overlying chronic pleurisy. The liver is deformed by contraction after gummata, and other small gummata are also seen in both its lobes. The gummatous mass has passed through the diaphragm into the lung, a very good example of the affection of multiple organs with tertiary syphilis. Histological preparations from this specimen show the difference from tubercle of the lung, the peribronchial fibrosis, thickened vessels, and comparative scarcity of giant cells.

SYMPTOMATOLOGY.

Practically all the symptoms and signs of general chest disease occur in pulmonary syphilis. Though the term is usually applied to the tertiary stage, it must not be forgotten that a catarrh of the air passages, with signs of bronchitis, may occur in the secondary stage as an exanthem, possibly with pyrexia, the so-called "syphilitic fever," a somewhat rare condition. Of the symptoms which are outstandingly and unexpectedly prominent in pulmonary syphilis, the first is *dyspnœa*. In some cases it depends on inspiratory obstruction, as when there is tracheal or bronchial stenosis secondary to ulceration, or, more rarely, to pressure from without by a gumma. In most cases it depends on peribronchial fibrosis and sometimes the paroxysms may be asthmatic; this is a possible explanation of the good results of treatment by iodide of potash. As fibrosis takes time to develop it will not be marked in the young. Dyspnœa of more sudden onset may be due to syphilitic myocardial failure.

Hæmoptysis.—Though hæmoptysis only occurred in one of my cases, yet the literature quotes it as common. Those cases in which it has occurred are cases either of ulceration of the trachea or bronchi or of bronchiectasis developing as a result of such ulceration. It is rarely, if ever, fatal, but may recur.

Blood Pressure.—It is not usual in syphilis of the lung to get the lowered pressure customary in tubercle and malignant disease, so a normal or a slightly raised blood pressure is a point in favour of a diagnosis of syphilis.

Bronchiectasis.—Where bronchiectasis has resulted all the bad features of that disease are encountered, such as pyrexia due to retained secretion or to broncho-pneumonia, loss of weight, and general decline. In

the average case of pulmonary syphilis, however, there are widespread physical signs with little or no constitutional disturbance, and no pyrexia, anorexia, or loss of weight. The fitness of some patients in spite of marked lung signs is marvellous.

Distribution of Lesion.—A one-sided distribution in the chest, or hilar or basal rather than apical signs will sometimes suggest the diagnosis, and the radiogram may give the additional information that the spread of the fibrosis, or even of the gummata, is directly along the primary or secondary vessels and bronchi. It may also show marked thickening of the mediastinal shadows, and, as a rule, a heart-shadow differing in shape from that seen in tuberculosis. In chronic cases wrongly diagnosed as tuberculosis ringed shadows and evidences of calcification are absent. Evidence of syphilis in other organs than the lung is most suggestive. In one case, regarded as pure pulmonary tuberculosis, but in which fibrosis was very marked, the absence of the knee-jerk on one side led to the disclosure of a syphilitic history and a beneficial alteration in treatment.

Wassermann Reaction.—It is good practice to do a Wassermann test in all cases with repeatedly negative sputum tests, and in all atypical cases, as mixed tubercle and syphilis of the lung is not uncommon. Where pulmonary syphilis takes the form of a gummatous mediastinal tumour the positive Wassermann indicates a more hopeful diagnosis and antisyphilitic treatment. If pulmonary syphilis is suspected a Wassermann of the cerebro-spinal fluid should be done. If it is negative a provocative injection of novarsenobillon should be given before repeating the process. When X rays show the typical appearances of fibrosis or gumma the patient may give a negative Wassermann as a result of recent treatment. He may not disclose the fact until closely questioned, not knowing that it is important. There are occasional cases of undoubted syphilis in which both blood and spinal fluid Wassermanns are always negative.

FEATURES AIDING DIAGNOSIS.

The following is a general summary of features which have aided diagnosis in my series of cases.

1. Signs of phthisis, but repeated examinations of sputum for tubercle bacilli negative, and guinea-pig inoculations also negative.
2. Improvement in symptoms, especially asthma and dyspnœa, follows potassium iodide given empirically.
3. Signs marked, but history long and condition stationary. On the other hand, there may be no signs, except radiographically.
4. Other organs involved by ? syphilis.
5. Wassermann positive.
6. Recurrent but never fatal hæmoptysis.
7. Site of "TB" lesions unusual, and course abnormal.
8. Mixed TB and syphilis in lungs; TB may heal and sputum be negative, but symptoms—e.g., marked dyspnœa—remain.
9. Spontaneous fractures in patient and in another member of the family.
10. Blood pressure rather too high for tubercle or malignancy.
11. Symptoms typical of a mediastinal tumour, but Wassermann test, the effect of iodide, and the longer course differentiate mediastinal gumma from lymphosarcoma; X rays do not, as a rule, help in treatment.
12. Bronchiectasis, or tracheal or laryngeal stenosis.
13. "TB laryngitis" is never primary, so if this diagnosis is made, and there are no signs of lung disease, syphilis should be suspected unless an X ray shows typical tuberculosis. A syphilitic laryngeal ulcer should heal with potassium iodide, but local and general treatment and tonics may be necessary to complete cure (cf. vicious circle stasis in laryngeal diphtheria followed by ulceration from tube).
14. X rays show fibrosis of a peculiar distribution, with no calcification and no ring shadows, but much mediastinitis, with broadening of mediastinal shadow, and heart-shadow of a different shape. Radiographic peculiarities have, however, still to be worked out.
15. Chest signs, with little or no loss of weight, but marked peculiar anæmic appearance. Absence of the usual pyrexia of tuberculosis of similar severity.
16. Signs of serofibrinous pleurisy; the fluid recurs after repeated tappings, but the patient does not go downhill (cf. recurrent ascites, with stationary condition, due to syphilitic peritonitis or cirrhosis).
17. If histological autopsies were always done the typical appearances of syphilis would be found in many of the cases passed over, naked-eye, as tuberculosis.

TREATMENT.

The drug which gives the most rapid and unexpectedly good results in pulmonary syphilis is potassium iodide. Doses of 5 to 10 gr. thrice daily are often sufficient, but where gummata are present much larger doses are required. Where retention of secretion is giving rise to bronchiectatic cavities, as well as where free secretion is troublesome, Rolleston and C. Ogle[7] have drawn attention to the advantage of combining belladonna with the iodide. I have also found the addition useful when dyspnœa is a prominent symptom, very likely due to some extent to spasm.

The success of treatment in those cases in which there is any element, however slight, of tracheal or bronchial stenosis depends primarily on early diagnosis. There is a grave tendency to cicatricial contraction of scar tissue in these regions. Tracheoscopy and bronchoscopy are of much diagnostic value in doubtful cases.

Tonic treatment is often useful, and includes syrup of the iodide of iron in 1 drachm doses, and arsenic, either by mouth as Fowler's solution 1 to 5 minims, or intravenously as novarsenobillon, in selected cases in which the heart condition is reasonably good. The ferrum tartaratum combined with iodide of potash is also helpful.

Mercury requires more care in its use, but is not, as a rule, contra-indicated so long as the patient is kept under careful observation. On the whole inunction is best, but it may be given in the usual mixture with iodide. At the first sign of stomatitis it should be stopped. Under its use albumin may disappear from the urine in generalised visceral syphilis.

For the more well-to-do patient a course of warm sulphur baths at Aix-la-Chapelle or a voyage to the Canaries may be prescribed with benefit. Not only in those cases in which tubercle and syphilis are combined is benefit derived from fresh air, change of scene, and voyages. Even in the purely syphilitic cases the good results obtained from these measures with the rest which they imply is at times extraordinary.

It is very instructive sometimes when a case of dermatitis fails to heal up completely to see the great benefit derived when antispecific treatment is added to the local treatment already in progress. The same applies to cases of pulmonary tuberculosis which have a specific element. Indeed, temporary improvement may result, even in malignant conditions, from antispecific treatment in specific subjects. It is well known that syphilis is an ætiological factor in cancer of the lip, tongue, &c. I have also used with benefit thyroid gland and "Donovan's solution" in 10 or 15 minim doses. In mixed syphilis and tuberculosis the almost constant peribronchial fibrosis contra-indicates artificial pneumothorax. Complete recovery cannot, as a rule, be promised in syphilitic disease of the lung.

SELECTED CASES.

A synopsis of selected cases is here given:—

1. Male, aged 49. Starch worker. Two years' history of dyspepsia. Now has cough and nausea. Has lost 2 st. in last 18 weeks. No appetite; pale; anæmic. An indefinite resistance in upper part of abdomen. Liver enlarged, but also an indefinite lump palpable, apparently the lower pole of right kidney. Blood and albumin in urine. Signs of bronchitis at right base. Sent for an X ray examination as ? carcinoma stomach. X ray report: "Stomach normal; but lungs show general mottling, as tubercle but mainly basal, apices almost clear; suggest miliary tubercle." We then suggested tubercle of kidney as a possibility, and X ray report came back: "Kidneys normal to X rays; but calcified glands seen in front of sacrum." By this time we had received a strongly positive Wassermann report, also negative reports as to tubercle bacilli in sputum and urine. At no time was there any pyrexia. Novarsenobillon and mercury by inunction were now given, with rapid improvement. Chest signs were limited to rhonchi

over right lower lobe, consonating râles low down at the back on the right side, and slight friction over left border of sternum and precordium. First sign of improvement noted was that the urine cleared up as soon as antispecific treatment began (cf. Sir T. Myles).[5]

2. Female, aged 49, twice married. One child aged 21. Three months' cough. One month pleurisy. Returned from holidays just previously to admission; tired and weak. No previous chest trouble. Admitted as "asthma; getting worse." In coughing fractured third right rib near vertebral end; pleurisy, and later effusion, resulted; 56 oz. removed, clear, straw-coloured. Improving with rest and potassium iodide. No anæmia. Wassermann strongly positive. The indirect benefit a Wassermann may confer is well illustrated by Kirkwood, who relates a case in which as a result of his finding out that a woman had mixed tubercle and syphilis of the lung syphilitic treatment of a hitherto ununited fracture of the femur in her husband was completely successful, firm union resulting.

3. Female, unmarried, aged 56. Admitted as mediastinal tumour, with fluid at right base. This diagnosis was made because she was markedly distressed and cyanosed, with prominent superficial veins on the chest wall, together with mediastinal dullness in front and dullness over right lower lobe. A routine Wassermann was strongly positive, but before we could start any antispecific treatment the pulse-rate shot up, and as tapping the chest showed that the fluid now looked like liquid fæces, she was transferred for operation. She stood this well, and left the hospital much improved. Probably this was a case in which a breaking-down gumma of the liver burst through the diaphragm into the pleural cavity, and in the end the cavity became infected with *Bacillus coli*. Syphilitic treatment followed.

4. Male, aged 48, warehouseman. History of syphilis 15 years ago. Brother died of phthisis 30 years ago. Outstanding feature great dyspnœa, even when at rest. Cough with audible mucous secretion as he talks, yet he calls it a "dry cough." Two attacks of pleurisy, the second in January, 1925, and dyspnœa since. Three negative sputum specimens subsequent to positive ones. Lost flesh after first pleurisy attack, but regained it; losing again this year. A1 for insurance six years ago. Strongly positive Wassermann. Dull right apex and root. Tuberculous appearance. X ray shows broad mediastinal shadow, atypical distribution of involved area, mainly right-sided. Heart shadow unlike that of tuberculosis. Great improvement for a time under iodide, mercury, and later novarsenobillon, but later heart muscle slowly failed.

5. Male, aged 56, a baker. Admitted for great and urgent dyspnœa, with an outside diagnosis of asthma. History of osteomyelitis of right tibia, when aged 15, and of pneumonia a year ago; also of syphilis when aged 30, for which had three years' treatment at a lock hospital. Urine normal. Blood pressure 128/80. Wassermann strongly positive, 1 in 40. Signs of bronchitis and emphysema, with dullness and diminished breath sounds at right apex, and increase in vocal resonance. X ray of chest shows diaphragmatic adhesions on both sides, with hilar shadows stronger than usual. Did well under iodide at first and intensive treatment later on.

[Dr. Tylecote described several other cases, and showed radiograms illustrating various points. He then concluded by thanking Prof. Shaw Dunn, and Drs. W. B. Anderton, A. E. Barclay, W. J. S. Bythell, and J. L. Stewart for assistance in various directions in connexion with the paper.]

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SYDNEY HOSPITAL.—This hospital, one of the oldest institutions in Australia, is making an appeal for several thousands a year of additional income. It began its work as along ago as 1788, and from tents and wooden structures has developed into its present fine building, with thoroughly modern equipment. The annual expenditure amounts to more than £100,000, but the receipts unhappily fall considerably short of that sum.

PHIMOSIS AND DYSURIA IN INFANCY.

A CLINICAL INVESTIGATION.

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PART I.

AMMONIACAL DERMATITIS OF THE NAPKIN AREA AND ITS RELATIONSHIP TO DYSURIA.

THE question of phimosis and its relationship to circumcision is of considerable importance because of the frequency with which the operation is carried out, and it has appeared to us that this subject has received less consideration than it merits. The following paper is the result of a year's observation of all cases subjected to or recommended for circumcision in the surgical out-patient department of the Royal Hospital for Sick Children, Edinburgh, and constitutes an attempt to analyse this clinical material and review the whole subject. In a series of over 600 cases recommended for circumcision during the year under consideration, the chief complaint has been dysuria in about 53 per cent; 19 per cent. have been sent up because the doctor, nurse, or a neighbour thought that circumcision was necessary. In 12 per cent. an adherent prepuce or a true phimosis was discovered during the examination of a hernia or a hydrocele.

The high incidence of cases in which the symptom complained of was dysuria divides this investigation naturally into two main sections: (1) ammoniacal dermatitis of the napkin area and its relationship to dysuria; (2) the status of circumcision as a surgical procedure.

Our attention was directed to ammoniacal dermatitis of the napkin area and its relationship to dysuria by (1) its frequency (over half of our cases); (2) its persistent tendency to relapse in untreated cases; (3) the obvious incongruity of treating it by the removal of a perfectly lax prepuce which did not seem to be in any way responsible for the pain; (4) the resemblance between the symptoms of dysuria seen in the uncircumcised child and that observed in the meatal ulcer of the circumcised.

The only reference to this subject which we have been able to find in British literature is in John Thomson's [7] "Clinical Study and Treatment of Sick Children," which draws attention to Zahorsky's [8] work on the ammoniacal napkin and its relationship to the occurrence of meatal ulceration. This work attributes to a common cause dysuria, napkin dermatitis, and meatal ulcer, but the treatment recommended is purely empirical in character. The treatment of the various manifestations of ammoniacal irritation was put upon a rational basis in 1921, when Cooke, of St. Louis [3 4] published the results of an exhaustive clinical and experimental investigation, in which he demonstrated the efficacy of antiseptic impregnation of the napkin as a method of treatment. In a later paper Lanman [6] confirmed Cooke's findings.

Clinical Features.

Ammoniacal napkin irritation causing dysuria presents a definite clinical syndrome which may be described under four headings: (1) smell of ammonia; (2) irritation of the napkin area; (3) dysuria; (4) diet.

1. *Smell of Ammonia.*—There is a definite smell of ammonia from the napkins when they are removed if they have been allowed to remain in contact with the child for a short period of time in a wet condition. This is, of course, most marked on removing the morning napkin. Most mothers in this part of the country describe the ammoniacal napkin as "strong," or "irritating to the eyes," without recognising the ammoniacal origin of the odour, while many look upon it as a normal condition. Occasionally one encounters a mother complaining of the ammoniacal odour only, without having noticed

any irritability on the part of the child. It is also not uncommon for a mother to deny indignantly that the napkins smell at all, even though the odour may be easily recognised at several yards distance at the time of examination.

The urine collected directly into a vessel is entirely free from odour, and it should be noted that the odour is the pungent one of fresh ammonia, and is quite distinct from the foul smell of decomposing urine.

2. *Irritation of the Napkin Area.*—This may take the form of an erythematous or of an ulcerative lesion, and we have gradually come to recognise several distinct types: (*a*) simple erythema, (*b*) scaly erythema, (*c*) ulceration, (*d*) severe ulceration, (*e*) preputial dermatitis, (*f*) meatal ulcer.

(*a*) *Simple Erythema.*—A mild blush of the prepuce, scrotum, and inner sides of the thighs.

(*b*) *Scaly Erythema.*—Old-standing cases of the above type where the epidermis becomes thickened and glazed, then cracked and scaly in appearance, finally desquamating, often in large scales.

(*c*) *Ulceration.*—Ulcerative lesions with or without some accompanying erythema, affecting the scrotum and thighs. The "ulcers" commence as bluish-grey moist thickenings of the epidermis. The lesion is, in the absence of secondary infection, confined to the epidermis and therefore heals without scarring.

(*d*) *Severe Ulceration.*—Old-standing and very severe instances of the ulcerative type are not by any means common. In these the lesions have become confluent and bear at first sight a startling superficial resemblance to a widespread phagedæna. The epidermis is moist and thickened over the whole napkin area, and in places assumes a black colour as if undergoing gangrene. The lesion being practically confined to the epidermis, there are no marked toxic symptoms, though the infant may be very much worn out by constant pain and discomfort.

(*e*) *Preputial Dermatitis.*—Excoriation or ulceration affecting mainly the tip of the prepuce and often combined with some degree of irritation elsewhere. This type forms a definite entity by itself. The prepuce presents a somewhat bulbous extremity, which is thickened so as to be almost mushroom-shaped, and is fissured and excoriated. This condition is frequently designated "chronic balanitis," a term which is entirely incorrect and misleading. It is more accurate to refer to the condition as a preputial dermatitis, and this term is employed throughout the article.

The terms "balanitis" and "balano-posthitis" properly imply the presence of an inflammatory condition within the preputial sac. On inspection of the above type (*e*), of excoriated prepuce, however, it is very evident that all thickening and ulceration is not only confined to the free end of the prepuce, but affects an area at and just outside its orifice. On retracting the prepuce, moreover, no signs whatever of inflammation can be seen and the ring of smegma in the coronal sulcus is found to be uninfected. These observations have been confirmed by microscopical examination of prepuces after removal, in which no inflammatory reaction could be seen on the inner surface, the reaction being entirely confined to the outer aspect of the tip of the prepuce. It is not uncommon for the ring of œdema at the tip of the prepuce to prevent retraction, whereas, after the irritation has been cured by adequate treatment, the prepuce retracts with ease. True chronic balanitis is, in our experience, extremely rare in young children.

(*f*) *Meatal Ulcer.*—A lesion analogous to the above, but occurring in the circumcised child. In these cases one finds an ulcerative lesion at the glandular urinary meatus varying from a slight excoriation to an ulcer occupying half the surface of the glans penis. The history usually given is that a "water-blister" formed and then burst, leaving an ulcer which has evinced no tendency to heal. The majority of cases follow circumcision for the last-mentioned type of lesion (*e*). The meatal ulcer, like all ammoniacal lesions, is confined to the epidermis and heals without any scarring. Stricture of the meatus on healing only occurs as the result of infection of the chemically produced ulcer with pyogenic organisms. Despite the statements to the contrary often met with, this is, we think, extremely rare. The meatal ulcer exudes a little serous fluid which dries and forms a crust which may seal the meatus. In addition, the severe pain induced by micturition in these cases may lead to a reflex acute retention of urine, of which condition meatal ulcer is by far the commonest cause in children of this age. The meatal ulcer is the classical ammoniacal lesion in all cases in which the glans penis has been deprived of its normal preputial covering, and we have seen a typical meatal ulcer in a child who had never been circumcised, but who was the subject of a minor degree of glandular hypospadias with a congenitally short, hoodlike prepuce which did not efficiently cover or protect the glans.

3. *Dysuria.*—The child screams and draws up the legs just before and during the act of micturition.

4. *Diet.*—The condition is seen almost exclusively in bottle-fed infants or in children of the napkin-wearing age on a mixed diet. The condition very commonly appears immediately after weaning the child from the breast.

In all the types of napkin irritation due to ammonia one finds that the irritative lesions are most marked on the convex surfaces of the skin folds in the region—that is to say, the portions of skin which come most intimately into contact with the napkin, while the clefts between these folds are relatively unaffected. Adamson [1] has observed, moreover, that erythema is often encountered on the calves of the legs and the heels—that is, on those parts which come into contact with the outer surface of the napkin in the flexed position of the limbs commonly assumed by infants.

Sex.—While we are particularly concerned with the condition as it affects the male child, ammoniacal napkin irritation is also met with in females, but in them, owing to the protected situation of the urethra, it is seldom the cause of dysuria. The condition is said by some, however, to be an almost invariable precursor to the acute pyelitis of the female child.

Age.—The condition occurs most commonly in the first year of life, especially following weaning, whether this be done early or late. If the mother is questioned the onset of a smell of ammonia or of the signs of irritation can in many cases be dated quite definitely from the commencement of bottle-feeding, while the condition is rare in breast-fed children. The reasons for this are explained below. The following cases illustrate well the common history of a sudden onset of napkin irritation immediately after weaning, and the second one also the necessity in severe cases of conscientious attention to the details of the method of treatment advised below.

CASE 577.—C. M., aged 1 year, has been fed entirely at the breast and had been an exemplary infant, until one week before seeking advice. Since weaning the baby a week ago a strong smell of ammonia had been noted, especially from the morning napkins; the child has cried every time he passed urine, and ulcers have appeared on the scrotum and the tip of the prepuce. Boric treatment relieved the dysuria in one day and healed the ulcers in one week.

CASE 581.—C. G., aged 10 weeks, was sent in by a doctor with a request for circumcision on account of severe dysuria accompanied by ammoniacal ulceration of the thigh, scrotum, buttocks, and prepuce. The symptoms had been present since the child was weaned two months before. Boric treatment was advised and a month later the mother returned armed with another letter from the doctor again requesting circumcision as the boric treatment had failed to relieve the condition. On questioning the mother it was found that she was using very thin non-absorbent cloth napkins, and was treating five or six in one cupful of solution. She was told to get towelling napkins and was carefully coached in the proper boric routine. On reporting one week later the lesions were practically healed.

Ætiology and Pathology.

For a proper understanding of the ætiology of ammoniacal napkin dermatitis we are indebted to the observations of Zahorsky [3] and Brenneman,[2] and especially to the experimental researches of Cooke [3 4]

on the subject. It is largely owing to these researches that the condition has been placed upon a firm basis as a clinical entity and its causation clearly demonstrated. Cooke showed that the lesions were produced by ammonia and that the ammonia was liberated from the urea of the urine by the action of an intracellular urease present in a bacillus which inhabits the colon in a large percentage of normal children.

He obtained this organism (*B. ammoniagenes*) in pure culture and studied its peculiarities. It is a Gram-positive, non-motile, aerobic bacillus forming a short, straight rod with well-rounded ends, and measuring from 0·8–1·4 microns in length. Occasionally larger forms are met with, and in older cultures involution forms are common. On culture the colonies as a rule show a faint yellowish pigmentation. The organism is non-pathogenic and does not ferment the ordinary sugars or form spores.

The bacillus flourishes best in a medium which is on the alkaline side of neutrality, while an acid environment causes cessation of growth. Thus, in the highly acid contents of the large intestine of the normal child the organism will not flourish. If the acidity be diminished it will begin to flourish, and will multiply the more actively the nearer the reaction of the contents of the bowel tends towards alkalinity.

Inoculated into a solution of urea or into fresh sterile urine under conditions favourable for its growth, it produces ammonia in considerable quantity in a very short space of time. It is the ammonia produced in this way in the urine-soaked napkin which is responsible for the irritation of the underlying area of skin. This point was conclusively demonstrated by Cooke as follows: He applied a wet dressing of a pure culture of the *B. ammoniagenes* to his own forearm for 12 hours without the development of any lesion. A wet dressing of urea solution again caused no irritation, but a wet dressing of urea solution inoculated with *B. ammoniagenes* produced a strong smell of ammonia and a typical glazed erythema in the course of a few hours.

It is clear from what has been said that alterations in the chemical reaction of the contents of the large intestine are of importance. The normal acid reaction inhibits the growth of the *B. ammoniagenes* sufficiently to prevent a significant production of ammonia in the napkins. If the acidity diminishes, the organisms increase in number and the production of ammonia correspondingly increases. Debre, Goiffon, and Rochefrette [5] have shown that the stools of breast-fed babies are highly acid in reaction, while those of bottle-fed infants become slightly alkaline, approximating in reaction to the fæces of the adult. It is clear, therefore, that the *B. ammoniagenes* can flourish actively in the stools of bottle-fed children, and that, consequently, napkin irritation is more frequently met with among them, whilst it is rarely seen in the purely breast-fed infant.

This observation furnishes the explanation of the fact previously noted, that it is a common experience to elicit a history that ammonia production, dysuria, and dermatitis have first made their appearance within a day or two of weaning the child from the breast. (See Cases 577 and 581 described above.)

"*Ammoniacal Storms.*"

In bottle-fed children and in those past the age for bottle-feeding, it is obvious that the chemical reaction of the stools must vary considerably from time to time according to the diet and a host of other factors, and that therefore the activity of the bacillus will also vary from time to time. As a result, we find that children who suffer from ammonia production do so in recurrent attacks. They are, in fact, liable to what we are in the habit of referring to as "ammoniacal storms," which last for a varying period. Each storm is accompanied by erythema or excoriation of the napkin area, and when the child passes urine through the irritated ring of skin at the tip of the prepuce, pain is caused and the infant screams.

In the already circumcised child, if a storm occurs, the delicate epidermal surface of the tip of the glans penis bears the brunt of the irritation in the absence of its natural and more resistant protector the prepuce, resulting in the development of a meatal ulcer.

The liability of ammonia formation to take place in these storms explains why some children may develop meatal ulcers immediately after circumcision, while in others its appearance is long delayed. No circumcised child is immune from this complication so long as he continues to wear napkins even at night. The largest meatal ulcer which we have met with appeared during an intense ammoniacal storm nearly 18 months after circumcision, when the boy had long given up wearing napkins during the day, but was still wearing them during the night. The two following cases illustrate the intervals which may elapse between circumcision and the development of a meatal ulcer, their lack of response to empirical methods of treatment, and their ready response to the boric acid treatment.

CASE 535.—H. I., aged 8 months, was circumcised on account of dysuria at the age of 7 weeks. He was cured after the operation until two months before being seen, when a meatal ulcer appeared, with very severe dysuria, erythema, and a smell of ammonia. The ulcer has persisted unchanged in spite of the trial of the usual methods of treatment. Boric treatment was advised with the result that the ulcer healed within a week.

CASE 600.—H. H., aged 1 year 6 months, was circumcised shortly after birth as a routine measure. He has suffered from severe dysuria during the last fortnight. The boy wears napkins only at night now, but these are very ammoniacal when removed in the morning. There was a very large meatal ulcer covering half the glans and a mild erythema of the napkin area. Boric treatment of the night napkins relieved the dysuria in 48 hours and healed the ulcer in a week.

The more ammonia there is liberated in the napkins the more alkaline do the contents of the napkin become, and, consequently, the more rapidly does the offending bacillus proliferate. Once ammonia appears, therefore, a vicious circle is initiated, so that ammonia is produced in larger and larger amounts, and this explains Cooke's observation that the intensity of the irritation is influenced by the length of time during which the napkins are allowed to lie in contact with the child in a wet condition. It will be seen later that it is this vicious circle which we aim at breaking by means of the boric method of treatment.

Other subsidiary factors which may influence the condition are the following: (1) the care exercised in keeping the buttocks clean and powdered; (2) boiling the napkins, rather than merely washing or rinsing them; (3) the type of soap used for the child, the cheaper brands of soap being often strongly alkaline in reaction.

It is because of attention to these details that the severe types of irritation are rare amongst better-class children.

Differential Diagnosis.

The three main skin affections which must be mentioned are syphilis, the common intertrigo, and impetigo.

1. *Syphilis.*—It was formerly believed that many persistent napkin rashes were attributable to hereditary syphilis. That the frequency of this association has been exaggerated there can be little question, as most of the so-called syphilitic rashes in the napkin area present the features which we are accustomed to see in ammoniacal irritation, and respond readily to efficient treatment directed towards this condition. Certain cases will be found to be associated with other signs of hereditary syphilis and a positive Wassermann reaction. It is probable that the unhealthy syphilitic child is more than usually liable to show the severer manifestations of ammoniacal dermatitis. The true syphilide is, of course, occasionally encountered, but in it the lesions will be found to lie in the true skin and therefore to be deeper than the epidermal ammoniacal lesions.

2. *Intertrigo* presents quite a different picture from ammoniacal dermatitis, and if a true conception of the ætiology of the latter condition be kept in mind,

no difficulty can arise. The most essential point of difference lies in the fact that the ammoniacal lesion affects the convex surfaces of the skin folds in the napkin region and spares the clefts, while conversely, intertrigo essentially affects the clefts where skin surfaces are in contact and spares the convex surfaces, at any rate, in the milder cases. Intertrigo also presents a typical moist "weeping" surface of a brilliant scarlet colour, which is not seen in the ammoniacal erythema. The history of an ammoniacal odour in the napkins should be absent in intertrigo, but the mixture of serous discharge with the urine and fæcal matter in the napkin of an ill-kept child causes a foul odour which may be mistaken for ammonia. Lastly, intertrigo does not respond to treatment directed towards an ammoniacal lesion.

3. *Impetigo* may be grafted on the surface of an ammoniacal lesion. It shows a crusted appearance which is not seen in the uncomplicated napkin dermatitis, and similar lesions are usually present on the scalp or face.

Treatment.

Having regard to the ætiology of the condition, attempts to treat ammoniacal dermatitis must proceed along one of two lines: (1) dietetic, directed towards increasing the acidity of the contents of the large intestine; or (2) treatment of the napkins directed towards preventing the production of ammonia in them.

It is quite obvious that circumcision cannot influence the irritative process, and exposes the child to the possibility of developing the most distressing of all ammoniacal lesions, the meatal ulcer. In cases requiring circumcision, we either postpone operation till napkins are no longer being worn or else perform the operation after all symptoms of dermatitis have cleared up under appropriate treatment, first warning the mother that the treatment will need to be continued as long as the napkins are worn.

1. *Dietetic Treatment.*—Immunity from ammoniacal dermatitis adds another to the already overwhelming list of advantages of breast-feeding. In the presence of established ammoniacal dermatitis, attempts to alter the reaction of the contents of the large intestine by dietetic methods have been found disappointing by all workers on the subject. Accurate regulation of feeding to reduce imperfect digestion to a minimum is obviously a necessity in those cases complicated by slight degrees of enteritis. Increasing sugars in the diet at the expense of fats is said to render the stools more acid in reaction, but we have found this disappointing in practice, and, in view of the success attending the treatment of the napkins, we have not pursued this line of treatment further.

(2) *Treatment of the Napkins.*—The napkins form the only link at which the chain of events may be broken. When ammonia has actually been formed it is impossible to prevent its action on the skin by the application of the various ointments which have from time to time been suggested. Cooke showed that low concentrations of various antiseptics would prevent the production of ammonia in the test-tube, and, applying this observation to clinical practice, he conceived the idea of impregnating the napkins with antiseptics in order to prevent, or at all events, to delay, the bacterial action at work. The most efficient of these antiseptics is probably mercuric chloride, but undoubtedly the safest and simplest is boric acid, which we have made use of throughout. Cooke prefers the use of 1-4000 mercuric chloride prepared by dissolving a 7½ gr. tablet in two quarts of water. We feel, however, that to issue tablets of mercuric chloride to people of the hospital class, often living under very crowded conditions, is to run an unjustifiable risk of accidental poisoning. Boric impregnation of the napkin has proved extremely valuable in hospital work. The method is cheap, easy to apply, harmless, and very effective. After one experience of its effect in quietening that source of domestic discord, a screaming infant, the mothers themselves become the strongest advocates of the method. Admittedly one finds that certain of the more severe forms of the ulcerative type are a little slow in responding to the treatment on account of the presence of a superadded infection, but even these cases usually clear up in the course of a few weeks. Failure can usually be traced to the fact that the details of the method are being imperfectly carried out. (See Case 581 described above.)

Routine.

We are in the habit of giving to the mother the following printed instructions:—

Instructions for Boric Treatment of Napkins.

Obtain a packet of boric acid crystals. (Prescription given).

Treat all napkins* / Night napkins only } in the following manner.

(* The inapplicable words to be deleted.)

1. All napkins to be boiled thoroughly and then dried.
2. Add a dessertspoonful of boric crystals to a breakfast cupful of boiling water.
3. Soak the dried napkins in this solution, then wring out and hang up to dry. It is usually possible to treat two or three napkins in this way from one cupful.
4. Keep the napkin area of skin clean and dry, and change napkins frequently.

By this procedure the napkins are impregnated with boric acid crystals in a fashion similar to that used in the manufacture of boric lint. It is also of importance that suitable diaper materials should be used. Turkish towelling and Harrington are among the best, as they are fairly absorbent, withstand boiling well, and are of a non-irritating texture. Waterproof knickers should not be worn, as they keep the napkin region moist and also are apt to lead to undue economy in the use of napkins. In dealing with cases of severe dermatitis rigid attention to the details of the method of treatment may make all the difference between success and failure. (See Case 581.)

Treatment of Meatal Ulcers.—Before appreciating the true cause of this complication the treatment adopted was the passage of bougies to stretch the meatus and the application of a bland ointment to prevent the lips of the meatus from becoming gummed together by the exudate. The bougie method of treatment is definitely harmful, since by dilatation it exposes more of the urethral mucous membrane to the action of the ammonia, and, by lacerating the inflamed lips of the meatus it may cause cicatrisation and eventually stricture of the meatus. The boric method of treatment is uniformly successful in these cases, as demonstrated below. (See Cases 535 and 600.)

Results.

Recently we have treated with the boric method a consecutive series of 103 cases of dysuria in children of the napkin age presenting the signs and symptoms of ammoniacal irritation, and our results have been almost uniformly good.

The series has included instances of all types of ammoniacal lesions and may be classified as follows:—

1. Cases of dysuria of very short duration, not presenting any very obvious erythema, but in which an ammoniacal odour from the napkins has been noticed	17
2. Cases presenting a more or less diffuse mild erythema of the napkin area without excoriation or ulceration	23
3. Cases of preputial dermatitis	23
4. Cases presenting excoriations or ulcerative lesions most intense on the buttocks and scrotum	26
5. Cases of meatal ulceration	14

In all classes boric impregnation of the napkins has resulted in rapid cure almost without exception. In Classes 1 and 2 the cure is startlingly rapid, the dysuria being in all cases relieved in from 12 hours to two days. In the excoriated and ulcerated, Classes 3 and 4, a cure takes longer, as one might expect, but all lesions are usually healed in from one to three weeks. Lastly, the cases of meatal ulceration respond extremely well to the boric treatment, as even ulcers which have persisted for months in spite of other methods of treatment heal almost without exception in less than one week.

It is obvious that, if a child is liable to the development of "ammoniacal storms," the boric treatment must be continued after the lesions are cured, as long as the napkins are worn. It is not an uncommon experience to hear that a mother ceased to treat the napkins when the baby was apparently cured, but has hurriedly commenced again when a recurrence of the ammonia and dysuria made itself manifest. The following case illustrates the persistent tendency to relapse and the necessity for continuing boric treatment even in the absence of symptoms.

CASE 570.—J. S., aged 8 months, reported with dysuria and ammoniacal napkins of one month's duration. There was a well-marked preputial dermatitis and some excoriation of the scrotum and thighs. The prepuce was retractable, but constricted the glans considerably, therefore boric treatment was advised, to be followed by circumcision after the irritation was cured. The irritation and dysuria were gone when the child reported in ten days' time, but circumcision was delayed on account of a small perianal abscess which was incised. After the abscess had healed circumcision was arranged for. Before this was carried out the mother reported because severe recurrence of dysuria and dermatitis had taken place. On questioning her she stated that, as all symptoms had gone, she had ceased to treat the napkins, with the result that an immediate relapse took place. Boric treatment again healed the ulcers in about a week, and circumcision was then carried out, the mother promising to continue the treatment as long as napkins were worn.

The average mother will state quite definitely that the treatment does not add noticeably to her domestic duties.

It is worthy of note that, although we have consistently circumcised all children referred to us in whom a true phimosis (as we shall define the term in the next portion of our article) existed, yet the number of circumcisions performed in hospital has been decreased by well over 50 per cent. since the relationship of dysuria to ammoniacal irritation has been recognised and efficiently treated by the boric method.

Summary.

1. The symptom of dysuria is more often produced by chemical irritation than by any preputial narrowing.
2. The chemical irritant at work is ammonia, which is formed in the napkins by the action of a specific organism from the colon. This organism flourishes in an alkaline medium and is capable of splitting up urea with the liberation of ammonia.
3. The signs of ammoniacal irritation are confined to the napkin area and present definite clinical features, some of which are often misinterpreted.
4. The occurrence of meatal ulceration following circumcision is due to the continued action of the ammoniacal irritation after removal of the covering prepuce.
5. A satisfactory method of treatment by impregnation of the napkins with boric acid is described.

PART II.

THE STATUS OF CIRCUMCISION AS A SURGICAL PROCEDURE.

Circumcision lays claim to being the oldest surgical operation. It is first mentioned in the Book of Genesis, when Abraham is circumcised at 99 years of age, as a sign of his covenant with God. Among the Jews it has persisted throughout the ages as a religious rite. The date of its introduction as a surgical procedure is uncertain. It has become, if not the most common, certainly one of the most common surgical operations carried out to-day, and in our opinion one which is carried out far too frequently. We have been asked at one time or another to circumcise children who had no phimosis for such various conditions as prolapse of the rectum, skin diseases, enuresis, hypospadias, tuberculous disease of the kidney, and digestive disorders. In these cases the prepuce was blamed either for producing the symptoms or for being an aggravating factor. It has seemed desirable to make an attempt to define what criteria justify the performance of the operation. Circumcision from the religious standpoint is not considered in this paper.

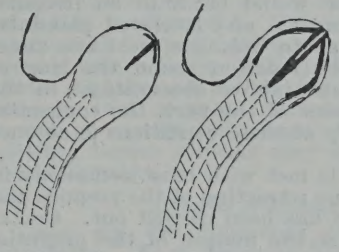
Since a correct conception of the development of the prepuce and glans is necessary to a complete understanding of the origin of phimosis a brief embryological summary becomes necessary.

Development.

Incorrect accounts of the development of the glans and prepuce are found in many text-books. A common error is that the tip of the genital tubercle is said to represent the glans penis alone, while the prepuce is described as a hood of skin growing forward to cover a previously exposed glans.

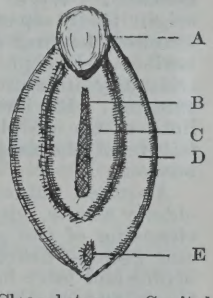
Credit is due to Berry Hart [11] and Wood Jones [10] for giving a full and correct account of the development of this part. With regard to this Wood Jones says: "Some degree of adhesion between the glans and prepuce is normal, and in regarding such adhesions as being the products of inflammation—or as anything other then entirely natural processes of development—an incorrect idea is gained of the condition, and an interesting page of embryology is overlooked." By studying embryos at various stages of development Berry Hart and Wood Jones were able to show independently that the genital tubercle (Fig. 1) is a skin-covered projection from the interior of which the future glans is sculptured out by the invasion of a mass of epithelial cells. The cloacal stage is common to both sexes (Fig. 2) and only later does the

FIG. 1.



The genital tubercle showing stages in formation of the glans and the tunnelling of the glans by the urethra.

FIG. 2.



Cloacal stage. A, Genital tubercle. B, Urethral groove. C and D, Inner and outer genital folds. E, Anal orifice.

sexual differentiation of the external genital organs become apparent. While in the female the inner and outer genital folds become transformed into the labia minora and majora respectively, and the genital tubercle becomes the clitoris, in the male the outer genital folds from the scrotum, and the inner genital folds fuse together over the urethral groove to form the penile urethra, the line of fusion being marked by a raphé on the under surface of penis. Most of the penis is formed by the genital tubercle, the tip of which gives rise to the glans and the prepuce, still undifferentiated from one another at this stage. The urethral groove does not invade the tip of the genital tubercle—i.e., the future glans. That portion of the urethra which traverses the glans is formed in a different fashion. A solid rod of epithelial cells burrows into the glans itself, and becomes canalised by the breaking down of the central cells of the rod. This occurs about the seventh month. At a later date an epithelial cell mass grows into the tip of the genital tubercle and sculptures out the glans from the overlying skin.

The prepuce is eventually separated from the glans by a breaking-down of cells, but this has scarcely begun by the time the urethra has perforated the glans. The future preputial space is filled with epidermal cells which become flatter and flatter and reach a stage comparable with the superficial cells which are shed from the skin surface. The prepuce and glans may not become separated until some weeks after birth. Should this breaking-down be incomplete or delayed it is not difficult to account for the presence of adhesions between the prepuce and glans, nor to see that an adherent prepuce is usually due to delay or arrest in development. True phimosis is most probably due to an error in development.

Ætiology of Phimosis.

Phimosis is defined as a stenosis of the preputial orifice; or, as Bland-Sutton [9] puts it, "the glans is muzzled by its prepuce." The condition may be congenital or acquired, and opinion varies as to which is the more common in childhood. By acquired

phimosis is meant the chronic inflammatory changes which are said to result from the irritation of the preputial sac by stagnating urine, smegma, and so forth. When we commenced this investigation we were inclined to consider the acquired form as being the more common. Since becoming aware of the frequency and importance of ammoniacal irritation and of the rarity of true chronic balanitis, we now believe that the acquired form of phimosis is very rare. After careful examination we have not seen a single case which we could definitely classify as an acquired phimosis, except those which come under two classes, occasionally met with. These are: (1) the case in which stretching has led to splitting of the preputial orifice in several places; the scar tissue resulting from this laceration causes a phimosis, for which circumcision has to be carried out; (2) the case of temporary acquired phimosis, due to œdema—resulting from ammoniacal irritation affecting the tip of the prepuce. Only when the œdema has subsided under treatment will retraction be found possible.

The adhesions which are found between the prepuce and the glans are filmy and soft, although on occasion they may be fairly firm, and they separate cleanly (like lines of cleavage in fascial or intermuscular planes) leaving a smooth, intact, and glistening glans beneath. Were these adhesions inflammatory in origin their separation would occur in an irregular manner, leaving an uneven and lacerated glandular surface. Except in acute balanitis we have never seen any inflammatory reaction round the ring of smegma. Reviewing the above observations in the light of the development of the part, the congenital nature of the majority of these conditions is at once obvious.

Acquired phimosis is met with most commonly in elderly adults, where no retraction of the prepuce and cleansing of the glans has been carried out. Cracks and fissures develop at the margin of the preputial orifice and later become infected and give rise to scar tissue and so phimosis. Preputial stones are apt to form in such circumstances, and these are the cases in which penile cancer is most commonly seen.

Types of Phimosis in Infancy.

In the infant there are three types of prepuce which will not retract: (*a*) true phimosis, (*b*) adherent prepuce (both congenital), and (*c*) temporary acquired phimosis.

(*a*) *True phimosis* is said to be present when, owing to narrowness of the actual orifice of the prepuce, retraction of the prepuce to the coronal sulcus is either impossible or, where possible, causes paraphimosis from constriction of the glans. True phimosis is much less common than it is generally supposed to be. In these cases the correct and, in fact, the only treatment is circumcision, or one of the plastic modifications of this operation.

(*b*) *Adherent prepuce* may be said to exist when it is the presence of adhesions between the glans and the prepuce which prevents retraction. Separation of these adhesions usually permits of fairly easy retraction of the prepuce. This is a very common condition, and one in which circumcision is not needed, as separation of adhesions and retraction relieves the condition.

We examined a consecutive series of over 50 male infants at the Simpson Memorial Maternity Hospital within ten days of birth; in not one of these could the prepuce be retracted without first separating adhesions or stretching. Not more than two of these 50 cases could be called cases of true phimosis.

The differential diagnosis between true phimosis and adherent prepuce, as defined above, is not always so simple as might appear. A definite degree of true phimosis offers no difficulty, for a gentle attempt at retraction of the prepuce usually displays well the typical "miniature proboscis" like end of the prepuce and also demonstrates the unlikelihood of any simple dilatation of the orifice being effective. It is in the lesser degrees of true phimosis where differentiation is not possible by mere inspection. Here all adhesions must first be thoroughly broken down with the aid of a probe, after which the result of an attempt at retraction will make the diagnosis obvious—e.g., an adherent prepuce will now retract fairly easily, and if left retracted for a moment or two does not cause constriction of the glans.

True phimosis and adherent prepuce are symptomless conditions. A true phimosis with sufficient stenosis to cause mechanical obstruction to micturition is, in our experience, a very rare condition.

(*c*) *Temporary acquired phimosis* has already been mentioned and requires no further discussion.

Clinical Features.

In a series of over 600 cases sent up for circumcision, the usual reasons for seeking surgical relief were grouped thus: (1) dysuria, 53 per cent.; (2) symptomless cases in which circumcision has been advised, often for no very obvious reason, by a doctor or nurse, 31 per cent.; (3) paraphimosis, 1·5 per cent.; (4) acute balanitis, 6·5 per cent.; (5) preputial dermatitis, 8 per cent. Uncommon reasons were ballooning of prepuce, hypospadias, and sebaceous cyst.

The indications for circumcision afforded by the above clinical features deserve consideration.

The cases of *dysuria* in Group 1 are almost invariably the result of ammoniacal irritation, as also are those of preputial dermatitis in Group 5 (see Part I.). In the presence of ammoniacal irritation, circumcision is contra-indicated. These two groups contain many cases of adherent prepuce and several cases of true phimosis. The former are treated by separation of the adhesions, retraction and lubrication of the glans with vaseline, while in the latter circumcision is postponed if possible until the child no longer requires napkins. If the circumcision cannot be postponed, it is carried out under the boric régime, and not until the signs of ammoniacal irritation have been cleared up by this treatment.

Symptomless Cases.

The cases in Group 2 were constituted exclusively of true phimosis and adherent prepuce. They were entirely symptomless, and had either been noticed by the family physician or nurse, or by us in the course of the routine examination of cases sent up on account of a hernia or hydrocele.

The cases of *paraphimosis* in Group 3 form only 1·5 per cent. of the total cases. They occur most frequently in children after the third year of life. Reduction can be effected easily in the great majority of cases after steady compression of the glans in a swab for a minute or two. In difficult cases two other methods are helpful; firstly, that advocated by C. W. Cathcart, in which the œdematous and congested glans is wrapped in a broad elastic band and left for 15–20 minutes; or, secondly, multiple punctures of the glandular mucous membrane by the point of a fine needle to relieve congestion and œdema. Thereafter compression of the glans and œdematous collar of mucosa should render reduction of the paraphimosis possible. In our opinion one attack of paraphimosis forms an indication for circumcision as soon as all œdema has settled down and the parts have resumed their normal appearance. If this is not done the condition may be expected to recur sooner or later.

Group 4 comprises the cases of *acute balanitis*, which in our experience is not associated with phimosis. On the contrary, it is most commonly met with in children of 2 years of age or older with a rather long and easily retractable prepuce. The infection is most probably carried to the preputial sac by dirty fingers, and that would explain its high incidence in the easily retractable type of prepuce and its absence in infancy. A true gonococcal infection may occur, but it is not by any means common. If recurrent attacks occur, there can be no objection to the treatment of this condition by circumcision during a quiescent interval, as it is difficult or impossible to improve the personal hygiene of the class of child in which it is met with. As the con-

dition has no relationship to the ammoniacal napkin, circumcision may be carried out without fear of the unpleasant complications, such as meatal ulcer, which may follow the operation in younger children. It is our custom to treat the acute condition by four-hourly fomentations. Irrigation of the preputial sac with weak boric acid solution can be employed should it be deemed necessary. We have not found a dorsal incision of the prepuce necessary in the acute stage.

The rare cases in which *ballooning of the prepuce* is present, and of sebaceous cysts of the prepuce, should be treated by circumcision. Hypospadias of the less severe glandular type, with a hood-shaped prepuce which overhangs the glans, should on no account be treated by circumcision, as the prepuce is a valuable asset to a plastic operation should this be found necessary.

Circumcision: Indications and Contra-indications.

Indications.—The chief indications for circumcision, based on the foregoing considerations, are: (1) true phimosis, (2) paraphimosis, (3) acute recurrent balanitis. As in other operations, the performance of circumcision can be justified only by the prospect of definite benefit to the patient. We believe it is contra-indicated except for the above-mentioned conditions. Certain specific conditions in which it should not be practised may, however, be mentioned.

Contra-indications.—The special contra-indications are as follows: (1) ammoniacal irritation (irritative dysuria, or dermatitis); (2) adherent prepuce (uncomplicated by phimosis); (3) enuresis; (4) the presence of certain local anomalies: (*a*) webbed penis, (*b*) small penis, with large suprapubic pad of fat, (*c*) hypospadias with hooded prepuce.

The relationship of circumcision to (1) ammoniacal irritation, and (2) adherent prepuce have already been considered.

Enuresis.—We do not know of any circumstances under which enuresis may be benefited by circumcision. Indeed, the general consensus of opinion is that the operation tends to make the condition, especially in cases of psychical enuresis, definitely worse.

Local Anomalies, in the Presence of Phimosis.—(*a*) Various degrees of *webbed penis* are met with. Circumcision gives a very bad æsthetic result; therefore, stretching and retraction should be given a good trial first.

(*b*) *Small penis with large suprapubic pad of fat.* This has also been called the "fat boy" type of penis. When circumcision is carried out here the penis is liable to disappear from view in the suprapubic pad of fat, to the great alarm of the parents. Here, again, the æsthetic result of circumcision leaves much to be desired, so that it is advisable to persevere with stretching and retraction, at least until the parts by growth have become more normal.

Preventive Treatment.

Every male child should have its foreskin separated or stretched and retracted in the first fortnight of life. We consider that it should be made part of a maternity nurse's duty, before paying her last visit to the mother and child, to free all adhesions by gently sweeping a probe round between prepuce and glans. Then she should retract the prepuce, clear out smegma, and apply vaseline to the glans. She should be well instructed in the proper method of doing this during her hospital training. The nurse should instruct the mother to retract, cleanse, and lubricate the prepuce and emphasise the importance of doing this each time the child is bathed. If the prepuce is difficult of retraction the medical man in attendance should be consulted as to the advisability of circumcision.

This routine, we feel, would not only tend to prevent the circumcising of cases in which the operation is not really necessary, but would also bring all cases of true phimosis under medical supervision at an early date. It would also be the means of educating the public in what is to them largely an unknown hygienic precaution—the proper care of the preputial sac.

Method of Separation of Adhesions, Retraction, and Stretching of Prepuce.

Separation of adhesions is first carried out on the dorsum of the glans by introducing a sterilised probe under the prepuce. (Some practitioners use the rounded end of a sterilised hairpin.) By means of the probe separation is first carried back to the corona, and then round each side to the frenum on the under-surface. Thereafter the foreskin is retracted until the coronal sulcus with its ring of smegma is completely exposed. The smegma is removed with a moist swab or piece of cotton-wool, the glans is lubricated with vaseline, and the prepuce drawn forward again. It is our experience that some cases, said to have been recently stretched by the doctor or nurse, have only been incompletely separated, as adhesions still persist at the corona and the ring of smegma is still intact.

Where adhesions are slight attempts at retraction of the prepuce may separate all adhesions and thus permit full retraction. When carrying out retraction one should always avoid stretching the region of the frenum too much, as this delicate structure may be easily torn and a brisk hæmorrhage result. The glans, by virtue of its shape, is a very suitable dilator for the prepuce.

Where the orifice of the prepuce is narrow it may require stretching before separation of adhesions or retraction is attempted. This is most easily done by inserting the closed blades of a pair of sinus or fine-pointed artery forceps within the orifice, opening the blades slightly and withdrawing them open. This is done in two or more diameters. The manœuvre should be carried out aseptically and gently, for if splitting occurs stenosis may result later from scar tissue formation.

Methods of Circumcision.

These are too numerous to describe or even enumerate. Each operator has his own particular method and finds it satisfactory. There are, however, one or two points in technique that should be noted.

To gauge the correct amount of foreskin which requires amputation may be difficult at first. The beginner usually removes too little, the possibility of damage to the glans being always in his mind. In estimating the amount to remove the position of the coronal sulcus should be defined by palpation. Immediately in front of this a pair of forceps—e.g., Kocher's pressure forceps—is applied across the prepuce. The forceps is applied obliquely downwards and forwards to avoid damage to the frenum. As the forceps is gradually tightened the prepuce is drawn forwards until the forceps has cleared the glans. Then with a knife the prepuce is divided immediately proximal to the forceps. Damage to the glans is avoided by maintaining traction on the forceps while the section is being made.

After removal of this major portion of the prepuce the remaining cuff of its internal layer is slit up in the middle line with scissors almost to the corona. The two flaps thus formed are turned back. No further paring of the internal layer should be done as the final result is better when 5 to 10 mm. of it is left. Paring the inner layer close to the corona is to be depreciated. The stitches used should be interrupted and tied rather loosely, as tight or continuous stitches may cause undue constriction, necrosis, and œdema. As the mattress stitch often advocated at the frenum is apt to give rise to an area of necrosis we prefer to use a simple stitch on each side of the frenum. It is true that stitching is not essential. A strip of gauze can be wrapped round the corona, coapting the internal and external layers of the foreskin. This is surrounded and fixed by a narrow strip of tape. If the two ends of this latter are twisted together gentle pressure is maintained along the line of suture. This method we first saw employed by a Rabbi, who used neither artery forceps, ligatures, nor stitches.

Routine Circumcision: Arguments for and against.

The medical profession is rather sharply divided on this subject. There are the extremists who advocate circumcision for one and all, irrespective of the absence or presence of any local pathology. Others only resort to circumcision in the cases that really require it on pathological grounds.

The principal arguments that the extremists put forward in favour of routine circumcision are three in number: (1) in the interests of hygiene; (2) to reduce

the risk of contracting venereal disease; (3) to reduce the risk of epithelioma of the penis.

(1) The operation of circumcision has been urged in the interest of hygiene and cleanliness. We feel that to advise any otherwise unnecessary operation, however small, merely as a labour-saving expedient is contrary to the ethics and principles of the healing art. The remedy lies for the main part in the education of the mothers through the medium of the maternity nurse.

(2) There is a widespread belief that venereal disease, especially gonorrhœa, is less frequent among the circumcised than among the uncircumcised. It is therefore thought that its incidence among Jews is considerably less than among the rest of the population. It is the impression of practitioners who work among Jews that the incidence of venereal disease does not differ materially in that race from its incidence among the uncircumcised. With regard to this, Dr. Fishberg,[12] of New York, states: "It appears that even circumcision, which was considered one of the reasons for the immunity of Jews to venereal diseases, is not of material avail when they expose themselves to the dangers of infection."

(3) It is probably a fact that epithelioma of the penis affects exclusively men who have suffered from a life-long phimosis. We fail, however, to see why this should be used as an argument in favour of the circumcision of children who are not the subjects of phimosis.

The chief arguments against routine circumcision are: (1) anæsthetic risks; (2) certain possible complications—e.g., cellulitis, meatal ulcer, strangulation of glans by a hair.

(1) An anæsthetic is often dispensed with when circumcision is carried out in the first month of life. Circumcision later in childhood requires the administration of a general anæsthetic. Anæsthetists who have much experience of children's work admit that they are specially watchful during the administration of an anæsthetic for a circumcision. As might be expected in an operation conducted on the genital organs, a considerable reflex fall of blood pressure occurs on clamping or cutting across the prepuce. We have the impression that anæsthetic "scares" are more frequent during the course of a given number of circumcisions than during a similar number of such operations as that for the radical cure of inguinal hernia. It is probable that the anæsthetic mortality is higher also.

In a certain proportion of cases respiratory complications (broncho-pneumonia, bronchitis, &c.) inevitably occur whenever a general anæsthetic is administered, no matter for what operation. In spite of a preliminary routine examination of the chest the percentage of respiratory complications in out-patients, as the majority of these circumcision cases are, must be appreciably higher than in in-patients.

(2) Certain complications are liable to follow circumcision and must therefore be kept in mind. *Meatal ulcer* follows in a certain proportion of circumcisions carried out in the presence of ammoniacal irritation. Serious *sepsis* is admittedly rare, but we know of cases of cellulitis following circumcision which have proved fatal. *Persistent hæmorrhage* may be the first sign of hæmophilia or purpura. A rarer complication is *strangulation of the glans penis by a hair.* This we mention because its occurrence is known to comparatively few. We have seen three cases during the last year. A long hair, probably derived from the child's mother, becomes wound round the coronal sulcus of a circumcised child and gradually cuts into the penis, causing œdema of the glans and an appearance at a first glance similar to a paraphimosis. It will be readily appreciated that the condition is not likely to occur in the uncircumcised child. The presence of œdema of the glans in a circumcised child should lead one to suspect the condition. On opening up the coronal sulcus a little sticky secretion will be found occupying a deep cleft at the bottom of which the offending hair will be found. We have seen an unrecognised case where the hair had completely divided the urethra, producing a very troublesome fistula, and had indeed nearly amputated the glans.

Conclusions.

(1) Adherent prepuce is extremely common, and may be considered normal in the first week or two of life.

(2) True phimosis is not so common as is generally supposed.

(3) Circumcision is carried out too frequently. In many cases separation of adhesions is all that is required.

(4) The chief indications for circumcision are true phimosis, paraphimosis, and acute recurrent balanitis.

(5) The routine circumcision in every case advocated by some is to be deprecated and is not without risks.

We wish to express our gratitude to Miss G. Herzfeld and Mr. Norman Dott, surgeons to the Royal Hospital for Sick Children, for the interest they have shown in these investigations, and to the latter for suggesting the need of the inquiry into the subject. We have to thank Miss Innes, sister in the surgical out-patient department, for much willing help and coöperation. The microscopical investigation of prepuces was carried out in the Experimental Surgery Department of Edinburgh University.

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THE CARRIER OF VIRULENT DIPHTHERIA BACILLI.

SOME RESULTS OF TREATMENT BY TONSILLECTOMY.

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UNTIL the active immunisation of non-immunes is adopted in England upon an adequate scale, the persistent carrier of virulent diphtheria bacilli must remain a source of danger to the susceptible child population amongst whom he lives. Hence it is still important to consider the available methods of treating the carrier state.

For the detection of the diphtheria carrier the routine morphological diagnosis of a culture from the swab is quite insufficient. The morphological diphtheria bacilli detected must be put to the proof of a virulence test.

Every year many hundreds of people—adults and children—who are so unfortunate as to harbour harmless diphtheroids, are hurried into infectious diseases hospitals upon the strength of a morphological diagnosis of a culture from the swab, to the needless anxiety of relations and at considerable cost to the community.

For example, in a recent consecutive series of 198 cases admitted to Little Bromwich Hospital, the practitioner before notifying the case had swabbed the throat or nose and received a positive report. 102 of the total showed evidence of clinical diphtheria. The remaining 96 showed no evidence. These latter were reswabbed by the medical officers immediately after admission, and the swabs sent for a report as to the virulence of the organisms present. In 61 of the 96 cases a report was received that the organisms present gave a negative guinea-pig Schick test; in 24 no organisms were found; in 11 only were organisms present which gave a positive guinea-pig Schick test (throat and nose, 2; throat, 5; nose, 4).

The original swabs taken by the practitioner, with possibly one or two exceptions, and all the swabs taken after admission by the medical officers in these cases, were examined in the Birmingham City Bacteriological Laboratory. Dr. H. Henry, the director, also carried out for us all the virulence tests detailed below, employing the guinea-pig Schick test.

The Chronic Carrier.

The chronic carrier of virulent organisms falls into one of two classes. He has either been the subject of a known attack of clinical diphtheria, in which case he is likely to have come under treatment and to be thereafter for a time more or less suspect; or he has never had any recognisable attack, but is discovered, as the result of swabbing contacts, to be harbouring diphtheria bacilli which can be shown to be virulent. He was probably the source of infection.

The chronic carrier of virulent organisms in the throat, whether "convalescent" or "healthy," is always immune—his Schick test is always negative.

In the majority of cases convalescent from diphtheria bacteriological clearance may be stated to be obtained as a general rule by or before the time that the patient is physically fit for discharge.

Hartley and Martin [3] showed that in a group of military cases the rate of clearance might be expressed by a logarithmic curve. Thomson, Mann, and McCartney,[4] in a preliminary study, decided that a patient should be classed as a carrier when the bacilli had persisted for 12 weeks. They state that of a total of 928 cases investigated, diphtheria bacilli persisted in 81 cases after 12 weeks had elapsed, whereas they ceased to be found by that time in 847. The investigation showed the much greater tendency for the bacilli to persist when they infect the throat and nose or the nose only.

TABLE I.—SWAB RECORDS OF FOUR CASES.

CASE 1.—I. P., 12 years. Faucial dipth., 8000 units. A. D. S. Tonsils very large.

No. of swabbings (throat and nose)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Operation.	21	22
Result T	−	+	+	+	+	−	−	+	−	−	−	−	+	+	−	+	+	+	−	+		−	−
Result N	−	−	−	+	−	+	−	+	−	+	+	+	+	−	−	−	−	−	−	−		−	−
Virulence test					T+							N+											
Day of disease	20	35	48	56	65	76	86	95	103	111	117	125	132	140	147	153	159	166	172	177	192	200	205

CASE 2.—D. H., 8½ years. Faucial diph., 16,000 units. A. D. S. Tonsils "enormous."

No. of swabbings (throat and nose)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Operation.	21	22
Result T	+	−	−	+	−	−*	−	−	+	+	+	−	+	+	+	+	−	+	−	+		−	−
Result N	+	−	+	−	−	−	+	+	−	+	+	−	−	−	−	−	−	−	−	−		−	−
Virulence test										N+ T+				T+									
Day of disease	24	30	37	43	50	57	66	80	88	95	102	112	119	127	132	137	142	147	155	159	168	175	180

* Detained for sore nose.

CASE 3.—G. B. C., 8 years. Faucial diph., 8000 units. A. D. S. Tonsils large.

No. of swabbings (throat and nose)	1	2	3	4	5	6	7	8	9	10	11	12	Operation.	13	14
Result T.	+	+	+	+	+	+	+	+	+	+	+	+		−	−
Result N.	−	−	−	−	−	−	−	−	−	−	−	−		−	−
Virulence test					T+ N−										
Day of disease	32	38	42	46	53	59	63	68	74	81	88	94	109	116	120

CASE 4.—R. A., 9 years. Faucial diph., 8000 units. A. D. S. Tonsils large.

No. of swabbings (throat and nose)	1	2	3	4	5	6	7	8	9	10	11	12	Operation.	13	14
Result T	−	+	+	+	+	+	+	+	+	+	+	+		−	−
Result N	−	+	−	−	−	−	−	−	−	−	−	−		−	−
Virulence test				T+											
Day of disease	32	40	45	48	55	61	67	71	75	83	90	95	110	118	122

The purely nasal chronic carrier of diphtheria bacilli is not always immune. A purely nasal infection tends to produce immunity very slowly; but at any time before this has come about the nasal carrier may become the subject of true clinical nasal diphtheria, and, as a result of his clinical attack, will become an immune "convalescent" carrier. With a few nasal exceptions, however, it is true to say that the chronic carrier of diphtheria bacilli is always himself immune to the disease, either as a result of a frank clinical attack or as a result of immunisation by small repeated infections.

Theoretically from the case of true clinical diphtheria virulent organisms should be recoverable from the infected site in every case.

In a careful study of a long series of cases certified as suffering from diphtheria, and admitted to the South-Western Hospital, Caiger and O'Brien [1] found that "the laboratory worker's diagnosis (i.e., the recovery of virulent diphtheria bacilli) agreed with the clinical diagnosis of the hospital's medical officers in 97·5 of instances." Eagleton and Baxter [2] found that cultures from a case of diphtheria were virulent in 100 per cent. of those examined: from convalescents in 90·9 per cent.; from carriers in only 38·8 per cent. They found "no evidence that virulent cultures if isolated in a pure condition became avirulent."

For the purposes of this paper a carrier may be defined as a patient whose discharge from hospital is being delayed not upon grounds of physical unfitness, but by reason of the fact that he continues to harbour at one site or another *virulent* diphtheria bacilli. We agree that such cases form a small percentage only of the total admissions for genuine clinical diphtheria. The series of 90 cases which we analyse below occurred in an aggregate of 1538 admissions of cases of genuine clinical diphtheria; 81 were convalescent carriers and 9 were cases which on admission showed no clinical evidence of the disease, but which were Schick negative carriers of organisms of proved virulence. None of these nine is known to us to have had a previous clinical attack of diphtheria, but at least two of them are known to have been in close contact with cases which developed severe toxic types of the disease. All these 90 cases had either enlarged or unhealthy tonsils or adenoids, or both.

Futility of Local Antiseptics.

For a long time we restricted our efforts at clearance of the chronic carrier to local application of antiseptic sprays, &c., bacteriological aniline dyes, and diphtheria

vaccines. In a previous paper [5] one of us stated that in his experience the chronic carrier of diphtheria bacilli was almost always the subject of some nasopharyngeal abnormality; that the extensive trials of various methods of clearance carried out by Dr. Olga Payne showed that none of these were reliable; that surgical measures offered much better hopes of success, but

TABLE II.—*Bacteriological Reports Immediately Prior to Operation.*

Age-group.	Virulent diphtheria bacilli in—			Total.
	Throat and nose.	Throat.	Nose.	
0–5	11	4	8	23
5–10	19	12	14	45
10–15	7	9	—	16
15–20	1	1	—	2
Over 20	1	3	—	4
Total	39	29	22	90

that in the opinion of the writer, an opinion which as the result of further experience he no longer holds, such operations were preferably not done in fever hospitals.

To show the futility of local antiseptic treatment, or the policy of waiting for the organisms to disappear from unhealthy nasopharyngeal tissues, we have set out the swab records of four of the first batch of cases upon which it was decided to operate. (These are not

TABLE III.—*First Bacteriological Reports after Operation.*

Age-group.	Throat and nose.		Throat positive.	Nose positive.	Total.
	Negative.	Positive.			
0–5	17	3	1	2	23
5–10	39	—	—	6	45
10–15	15	—	—	1	16
15–20	1	—	—	1	2
Over 20	4	—	—	—	4
Total	76	3	1	10	90

included in the later and longer series.) Before operation was resorted to in each of these four cases they had been treated with various local applications, the principal effect of which was to irritate the mucosa (Table I.).

Results of Operative Procedures.

As the results of the first batch of cases which were operated upon in 1925 were so good, it was decided in 1926 to extend operative procedures considerably. The 90 cases detailed below show the results of this extended surgical work. As already mentioned, all were carriers of organisms of proved virulence; 81 were convalescent after a definite clinical attack of diphtheria, and 9 were Schick-negative carriers. Table II. shows the age-groups of the patients and the sites from which virulent organisms were recovered immediately prior to operation.

It will be noted that no purely nasal carrier occurred in the last three age-groups.

In 75 cases tonsils and adenoids were removed; in seven cases tonsils only, and in eight the adenoids only—all, of course, under general anæsthesia. It should be emphasised that the tonsil need not necessarily be enlarged; indeed, of the two it is the small buried tonsil which is more to be feared as a site of continued infection than the hypertrophied one. Such small buried tonsils require to be removed by dissection. In six cases in our series the tonsils were dissected. All cases after operation should wherever possible be returned not to the infected ward from which they came, but to a clean ward set specially apart for such cases. In all our cases when administratively possible this procedure has been carried out.

TABLE V.

No.	Before operation.			After operation.			Remarks.
	T. and N.	T.	N.	T. and N.	T.	N.	
1	+				—	+	14th day. Neg. 18th, et seq.
2	+				—	+	14th and 19th. Neg. 24th et seq.
3	+			+			7th day. Av. in 6th week.
4	+				Av.	+	15th day. Neg. 35th.
5	+				—	+	14th day. Neg. 18th.
6	+				—	+	,, ,,
7	+			+			8th day. Av. 17th.
8		+	Av.		—	+	8th day. Neg. 16th.
9		+	—		+	Av.	10th day. Av. 21st.
10		—	+		—	+	4th day. Neg. 12th and 18th.
11		Av.	+		—	+	10th day and 16th. Av. 21st.
12		—	+		—	+	7th and 14th day. Neg. 21st and 28th.
13		—	+	+			15th day. Av. 21st.
14		—	+*		—	+	7th day. Neg. 21st and 28th.
	7	2	5	3	1	10	

* Adenoids only removed. Remainder T's and A's.
Av. = Avirulent organisms.

Table III. shows the results of the first bacteriological report after operation.

In Table IV. are shown the days after operation on which the first swabbing was done. It will be noted that ten of the total number were first swabbed in the first six days after operation, and that all of these save one were returned as negative. It is not advisable, as a general rule, to attempt to swab until the seventh day after operation, as the tonsil beds are not sufficiently firmly healed before this time. Hæmorrhage may result from disturbing them with a swab.

It will be seen that in all save 14 cases a negative bacteriological report was received from both throat and nose as a result of the first swabbing after operation.

The 14 cases in Table IV., which on a first swabbing after operation were reported to be still positive, are further analysed in Table V.

It will be noted that the nose failed to clear on the first swabbing after operation in 10 of the 14 cases. In one case in which before operation the nose only was returned as carrying virulent organisms, a primary positive (virulent) swab was obtained from both nose and throat after operation. In one other

TABLE IV.

Result.	Day of first swabbing after operation.																	
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Over 18	Total.
	Number of cases.																	
T and N −ve ..	4	2	—	3	14	2	7	6	6	3	4	9	1	2	1	3	9	76
T and N +ve ..	—	—	—	—	1	1	—	—	—	—	—	—	1	—	—	—	—	3
T +ve	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
N +ve ..	—	1	—	—	2	1	—	1	—	—	—	4	1	—	—	—	—	10
Total	4	3	—	3	17	4	7	7	6	3	4	13	3	2	1	4	9	90

case before operation the throat was returned as carrying virulent organisms and the nose avirulent. After operation the throat swab was returned as avirulent and the nose as virulent. It is possible that an error in labelling might account for this discrepancy. All these cases cleared by the periods after operation stated in the table. It will be noted that in no less than five, later tests for virulence from cases which had originally carried virulent organisms were returned as avirulent.

As to whether the organisms had lost virulence or whether the virulent organisms had died out, leaving only avirulent commensals, we express no opinion.

The average time taken for clearance after operation may be summarised as follows. In 58 cases bacteriological clearance—i.e., negative swabs from nose and throat on first and succeeding swabbing—were obtained in an average period of 17·8 days after operation. In 22 of these cases two or more sets of negative swabs were obtained, and in 36 cases one negative set only. In 18 further cases negative swabs were obtained on first and succeeding swabbing, but owing to intercurrent conditions—e.g., measles—discharge from hospital was delayed. Had discharge from hospital been desirable when the swabs were first known to be negative, the average length of time taken for clearance in these 18 cases was 18·8 days after operation. In 14 cases (detailed above) the first swab after operation was positive (T. and N. 3, T. 1, N. 10). Clearance was ultimately obtained in an average of 31·2 days after operation.

In the earlier cases of the series we always waited for at least two consecutive negative sets of swabs from nose and throat after operation before discharging from hospital. But we found that in no instance where the first set of swabs after operation was returned as negative did we obtain a subsequent positive result from either nose or throat. We therefore now discharge from hospital if the primary set of swabs after operation are returned as negative.

By the kindness of Sir John Robertson, medical officer of health of Birmingham, we have been able to collate all the cases detailed in the above series with a list of known "return" cases from the 1926 admissions to hospital. Only 1 of these 90 cases is alleged to have been responsible for a return case; but since the boy's father, who also suffered from diphtheria, was nursed throughout at home, the responsibility of our case is at least doubtful. This boy was discharged from hospital with two consecutive sets of negative swabs and returned to us 20 days later with a positive nasal swab which proved to be virulent. His mother came into hospital notified as diphtheria. On admission she presented no clinical evidence, and her swabs were negative, but as she had received antitoxin before admission, we cannot express a definite opinion.

Potential Carriers.

In the course of the year, in addition to the series of 90 cases of known carriers detailed above 20 further cases were operated upon, not because they were known carriers, but because owing to the unhealthy condition of the nasopharynx they were regarded as potential infecting cases in spite of the fact that in many of them negative swabs had been obtained before operation was advised.

It is significant that one of these cases taken out against advice whilst he still had a moist nose was responsible for a "return" case of diphtheria.

We have not included these 20 cases in our main series for the reason that they were only regarded as potential carriers. In three of the series primary positive swabs were returned after operation—two from the nose and one from the throat.

Conclusions.

It is generally agreed that local antiseptic or bactericidal applications for the purposes of clearing the diphtheria carrier are virtually useless; diphtheria vaccines in our hands showed no results of value.

Tonsillectomy and the removal of adenoids are procedures of much greater value. Thomson, Mann, and McCartney [6] are of opinion "that the operative treatment of the carrier is encouraging, but limited in value" and "that no satisfactory method of treatment has yet been devised to deal with carriers of bacilli in the throat and nose, or nose only, except in cases where the tonsils continually infect the nasal passages and these seem unusual." Operative treatment for the clearance of the carrier is, of course, no new thing.

Friedberg,[7] Ruh Miller and Perkins,[8] Rabinoff,[9] Keefer Friedberg and Aronson [10] (91·3 per cent. negative within two weeks after tonsillectomy), and Weaver [11] (average time of clearance within 18 days after removal of tonsils and adenoids), have all published series of cases. Pilot [12] states that "the tonsils are the foci which usually harbour diphtheria bacilli in carriers and their removal frequently terminates the carrier state."

Tonsillectomy is not an ideal method, but it is a rational and successful one. Although we have never experienced difficulty in obtaining permission for the performance of the operation under a general anæsthetic, there is this possible objection, together with the other drawbacks of a cutting operation under a general anæsthetic.

Kahn [13] has had very successful results with X rays, and Stewart [14] claims good results from treatment with ultra-violet rays, applied locally. We have so far had no experience of either of these methods.

But, after all, the best way to render the immune carrier of virulent organisms innocuous is to secure that he lives not amongst susceptible children, but amongst children who have also been rendered immune by the safe and certain means provided by toxin-antitoxin.

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OBSERVATIONS ON THE TREATMENT OF DIABETES BY SYNTHALIN.*

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FOLLOWING up the discovery by Watanabe and others that the guanidine intoxication of tetany parathyreopriva (Paton and Findlay) was accompanied by hypoglycæmia, Frank, Nothmann, and Wagner [1] investigated the influence of various guanidine derivatives on carbohydrate metabolism in order to find that which would produce the greatest lowering of the blood-sugar and at the same time little or no toxic effects. They started by testing agmatin, the guanidine compound found by Kossel in herring-sperm and later made synthetically. It is amino-buthylenguanidin. By introducing another methyl group a more effective substance, aminopenthylen-guanidin, was obtained, and this in turn was improved upon by lengthening the CH_2-chain, giving us the compound now known as synthalin. In their papers Frank and his collaborators give numerous examples

* This communication was received by us after the publication in THE LANCET of Sept. 3rd (pp. 517 and 509) of the preliminary reports to the Medical Research Council on synthalin, and of our comment thereon.

[1] Frank, Nothmann, Wagner: Klin. Woch., November, 1926, 2100–2107.

of the influence on the blood-sugar of rabbits and dogs of synthalin given subcutaneously and orally, e.g. :—

In a normal rabbit 3 mg. per kilo (*subcutaneously*) lowered the blood-sugar as follows: before administration, 0·131 per cent.; 1½ hours after, 0·124 per cent.; 6 hours after, 0·115 per cent.; 9½ hours after, 0·057 per cent. Convulsions occurred; recovery by giving glucose; living next day.

Dog (pancreas totally removed): 10 mg. per kilo, *subcutaneously*. Blood-sugar lowered from 0·426 per cent. to 0·090 per cent. in eight hours. Recovery from convulsions by giving glucose.

Dog (pancreas totally removed): 20 mg. per kilo *per os*. Blood-sugar lowered from 0·314 per cent. to 0·274 per cent. in eight hours. Another dog similarly treated: 0·318 per cent. to 0·070 per cent. in 14 hours. Recovery from convulsions with glucose.

They point out that in comparison with insulin the action, although slower, lasts considerably longer. The guanidine compounds anchor themselves for a long time to their substrate and are therefore very liable to act cumulatively. Those animals with marked convulsions and other severe toxic symptoms usually respond to glucose administration, but not infrequently die next day.

I shall not allude further to the other animal experiments recorded beyond saying that certain proof is brought forward to indicate that, in a general way, synthalin, like insulin, favours both the utilisation of sugar in the system and its storage as glycogen. Doubtless before long those in this and other countries who are in a position to test the validity of the assertions made as to the effect of synthalin on experimental animals will publish their results.

Effect of Synthalin on the Carbohydrate Metabolism of Diabetic Patients.

My first tests with synthalin were carried out on two severe cases of diabetes on Feb. 27th, 1927. Both patients (females, aged 23 and 25) have received synthalin continuously ever since, and during these six months have been tested regularly once or twice

TABLE I.—*Details of 13 Cases of Diabetes treated with Synthalin.*

No.	Patient.	Sex and age.	Nature of diabetes.	Duration of synthalin treatment.	Insulin in addition. (See text.)	Apparent result of preliminary treatment.
				weeks.		
1	G. B.	F., 23	Sev.	28	Yes	Good.
2	G. E.	F., 25	„	28	„	Very good.
3	L. S.	F., 59	F.Sev.	3½	„	Good.
4	M. W.	F., 63	Mild	3½	No	Good.
5	S. L.	F., 59	Mod.	5	„	Good.
6	M. G.	F., 66	„	3	„	Marked toxic symp.; treatment discontinued.
7	S. W.	F., 62	„	8	„	Fair.
8	M. K.	F., 45	Mild	1½	„	Apparently no effect.
9	H. R.	F., 35	Sev.	1	Yes	Fairly marked toxic symptoms; treatment not suitable —discontinued.
10	G. B.	M., 58	Mild	1	No	
11	J. G.	M., 48	„	1	„	
12	O. J.	F., 58	Mod.	5	„	
13	A. O.	F., 60	„	2	„	Very little effect—no practical value.

F. sev. = Fairly severe; Mod. = Moderate.
(Details of dosage given later.)

weekly, and daily at times, particularly at first. As supplies of synthalin increased other cases were added, until in all 13 have received treatment for periods varying from 1 to 28 weeks. In addition, tests have been performed on two normal persons. Six of the patients were treated at the Royal Northern Hospital, one at the London Temperance Hospital, and four in the laboratories of the medical unit at St. Mary's Hospital. The remaining two were private patients—moderately severe cases—who refused insulin injections.

In trying synthalin my aim was to decide the following points: (*a*) Does synthalin lead to increased storage of sugar? (*b*) Does it increase the burning of sugar and so lessen the production of acetone bodies? (*c*) In the event (or non-event) of toxic symptoms is there any evidence of damage to the liver or kidneys?

For (*a*) blood and urine analyses were employed; for (*b*) Rothera's test and R.Q. determinations; for (*c*) the clinical signs, tests for urobilinuria and albuminuria, and the hæmoclasic crisis test in two instances. Van den Bergh reactions were not done.

Group (*c*) can be dismissed in a few words. Although it was felt that the liver was probably slightly poisoned in the toxic cases (gastro-intestinal irritation and general malaise), no positive results were obtained with the tests and no trace of jaundice or tenderness over the liver noticed. Only two cases (4 and 5 in table) showed albumin in the urine, and these had no toxic symptoms. Curiously enough the albumin appeared in both instances only after the drug had been stopped for a few days, and when the blood-sugar had risen to a rather high level again. No explanation is offered.

CASES 1 and 2.—G. B. and G. E. have been investigated together throughout. Both had been under my care for insulin treatment for about three years previous to synthalin. During this time the insulin dosage had been very considerably reduced until a balance between diet and dosage had become more or less fixed for the past year. Case 1 required 22+18 units daily for a diet of 35 g. carbohydrates + 90 g. proteins + 114 g. fat, while G. E. required 25+22 units for a diet of 38 C. + 95 P. + 120 F.

EXPT. 1 (Feb. 27th, 1927).—Both patients: no breakfast and no insulin. Both given 50 mg. synthalin fasting.

Blood-sugar values.	G. B.	G. E.
	per cent.	per cent.
Before synthalin	0·176	0·159
35 minutes after	0·201	0·173
80 „	0·173	0·181
180 „	0·156	0·150
240 „	0·128	0·139
360 „	0·116	0·132

The blood-sugar is lowered in spite of the initial tendency to rise.

EXPT. 2.—A somewhat similar test was done on G. B. on June 26th, 1927, but at the same time respiratory quotient estimations were made. To ensure that the blood-sugar should be up no insulin or synthalin was used that morning, but 20 g. C. were ingested at 8.30 A.M.; 60 mg. synthalin taken at 10.30 A.M.

B.S. at 10.30 A.M. .. .. 0·258%. R.Q. = 0·84.
„ 1.30 P.M. .. .. 0·224%. R.Q. = 0·80.
„ 4.45 P.M. .. .. 0·186%. R.Q. = 0·95.

Experiment repeated four days later, but no synthalin :—

B.S. at 10.30 .. .. .. 0·237. R.Q. = 0·86.
„ 1.30 .. .. .. 0·240.
„ 4.45 .. .. .. 0·221. R.Q. = 0·86.

Urine before the meals contained a small quantity of acetone, but no sugar. The urine collected over the synthalin test contained 4 per cent. sugar and more than double the amount of acetone in the early morning specimen. The acetone did not appear to be increased when no synthalin given. This is strange, as in the cases about to be described acetone tends to disappear under the treatment, though in my experience much more slowly than the German workers affirm. Perhaps the large dose had a toxic effect on the liver not accustomed to the preparation. The result makes it difficult to say anything about the burning of sugar; it seems to offset the indication of the R.Q.'s that such is happening. The experiments point to the fact that synthalin causes sugar to be stored. The gradual disappearance of acetone bodies shown to occur in subsequent tests indicates that synthalin must also cause it to be burnt.

EXPT. 3.—Effect of synthalin on two normal persons (August 17th, 1927):—

—	Male, 69 years.	Male, 21 years.
Fasting blood-sugar	0·108	0·098
70 mg. synthalin given.		
2 hours after	0·112	0·098
4 „	0·118	0·092
6½ „	0·106	0·074

No symptoms except those of ordinary fasting. In the first case there seems to be a slight interference with storage, in the second a definite hypoglycæmia at 6½ hours.

Now to return to the treatment of Cases 1 and 2 with synthalin. The patients were kept strictly to the dietaries on which they were balanced by the insulin already mentioned—i.e., normal blood-sugars at 3–4 hours after "insulin" meals. Synthalin was then used to replace some of the insulin without disturbing the blood-sugar values at the "3–4 hour" periods, the insulin being withdrawn as the blood-sugar fell. The preparation was given continuously in cycles of four days: first day, 25+10 mg.; second day, 25 mg.; third day, 25+10 mg.; fourth day, none. In this way G. B.'s insulin was reduced from 22+18 to 10+6 units daily, and G. E.'s from 25+22 to 10+10 in three weeks. In order to lower the insulin still further an additional 10 mg. synthalin was allowed every fourth day. The blood-sugars remained practically steady for the following week and then almost simultaneously both patients complained of loss of appetite, feelings of nausea, lassitude, and slight headache, but no irregularity of the bowels. The "3–4 hour" blood-sugars had risen to 0·135 and 0·140 respectively, when one might have expected them to be subnormal. The synthalin was stopped for a few days and the insulin increased. Treatment was then resumed with smaller doses and gradually worked up until the original amounts of synthalin and insulin were being given again. G. E. was sick once after this, but G. B. not at all. Omission of the drug for four days cleared up the trouble, and she has been all right ever since. The evening doses of insulin were steadily decreased so long as the blood-sugars 3–4 hours after the morning doses remained normal, and for the past two months both have been taking only 10 units every morning and none in the evening. Moreover, just a week ago G. E.'s blood-sugar had fallen to 0·080 per cent. So she was brought down to 8 units once daily. They are both feeling and looking well, weight maintained, and both working eight hours daily. At present they are having 10 mg. synthalin every evening and 25 mg. every other morning in addition to the insulin. In these two and several other cases the acetonuria was very resistant to treatment, and indeed showed an appreciable, if not considerable, increase for a time. In the end it practically disappeared.

CASE 3 (aged 59). Has been on insulin treatment for almost two years. In the latter part of last year she had through neglect allowed incipient gangrene of the toes to develop. Although she made a good recovery when adequate insulin was given, she remained as a borderland gangrene. She was readmitted for synthalin treatment on July 20th, 1927. Previous to admission she was taking 25+25 units daily. The diet was rearranged and only 15+15 units given so that the blood-sugar would rise. She became stabilised, so that on August 7th, 1927, there was 1 per cent. urinary sugar, a moderate amount of acetone, and a blood-sugar of 0·230. The latter and subsequent blood-sugars were taken four hours after the morning insulin. Beginning on the 8th (i.e., the next day) 25 mg. synthalin were given every morning and 10 mg. every other evening. On the 9th the blood-sugar was 0·206, the 12th 0·190, 15th 0·190, 17th 0·218, 23rd 0·187, 27th 0·168, and the 30th 0·140 per cent. The sugar in the urine and most of the acetone gradually cleared up. She thinks she felt rather better on insulin alone, but is not quite sure.

CASE 4 (63 years), mild, admitted to hospital on June 10th, 1927. Before admission passed about 1 per cent. sugar on 100 g. C. Since admission she has been taking 0 C.+95 P.+120 F., and the urine has been normal. Blood-sugar four hours after food on 14th=0·280 per cent.—high renal threshold. The blood-sugar gradually settled to a fixed figure. Thus on the 28th it was 0·195, and on July 6th and 10th it was 0·210 per cent. Synthalin, 25 mg. every morning and 10 mg. every other night, was begun on the 11th. On 19th the blood-sugar was 0·160, on 26th 0·135, and on August 3rd it was 0·090 per cent. A week after stopping all synthalin the blood-sugar had risen higher than ever—0·283 per cent. Fifteen units of insulin given to this patient fasting, before the synthalin was started, lowered the blood-sugar from 0·160 to 0·098 per cent. in 2½ hours—a very much more rapid action.

CASE 5 (59 years), moderate severity, admitted to hospital on June 7th, 1927, and was given a diet containing 30 g. C. Seven days later the blood-sugar (four hours after food) was 0·330. After another 14 days it was still stable at 0·300 per cent. Next day (29th) synthalin was begun—25 mg. every morning and 10 mg. every other evening. On July 1st the blood-sugar was 0·280, on 19th 0·220, on 26th 0·153, and on August 3rd it was down to 0·115 per cent. The 1½ per cent. sugar in the urine and the small amount of acetone present at the beginning slowly cleared up during treatment. Seven days after withdrawing all the synthalin the blood-sugar had risen to 0·235 per cent.

CASES 6, 9, 10, 11.—Only No. 9 was having insulin (25+20 daily). 9, 10, and 11 developed nausea and general malaise in about one week each on 25+25 mg. daily and without any noticeable influence on carbohydrate metabolism, so the treatments were abandoned as unsuitable. In No. 6 the results were equally disappointing, but the toxic symptoms were longer in developing.

CASE 12.—An out-patient; intermittent sickness and consequent inability to keep to the diet make the results valueless. She had had the drug on and off for nearly five weeks.

CASES 8 and 13.—No toxic effects after 35 mg. daily, and little, if any, influence on the blood and urinary sugar. In 13 the diet was under suspicion, so details will be omitted.

CASE 7 (62 years), moderate severity. The blood-sugar 2½ hours after a breakfast containing 25 g. C. on June 1st, 1927, was 0·374 per cent.; sugar in urine, 6·5 per cent.; no acetone. With slight restriction of the diet the blood-sugar 2½ hours after breakfast on the 10th was 0·276 per cent.—stabilised. On the same day she began a four-day cycle of 35+35+35+0 mg. synthalin. By the 30th the blood-sugar was down to 0·164, and ten days later to 0·147 per cent. Slight loss of appetite caused the dosage to be reduced to 25+35+25+0. The patient was soon all right again and the blood-sugars varied from 0·140 to 0·150 during the next four weeks; no further cumulative effects. The sugar in the urine had disappeared 3½ weeks after treatment was begun; no acetone found at any time.

Summary.

Synthalin has an action like insulin in so far as it appears to cause sugar to be stored and to be used. The German workers offer proof of this in animal experiments and clinical investigations seem to support it. Confirmation of the former is awaited with interest. Although it resembles insulin it acts very much more slowly and is not nearly so consistent—large doses sometimes producing no appreciable effect and comparatively small ones occasionally giving rise to marked toxic symptoms, which, however, soon disappear on withholding the drug. The great advantage of the treatment is that it is taken by the mouth. Table I. shows my results. Out of 13 cases tested, five seem to have done well so far, one fairly well, two uninfluenced, and five were unable to take an adequate amount of the drug without developing symptoms of poisoning. It is the occurrence of the latter that makes one hesitate just yet to pronounce the *apparently* good results as *really* good, fearing lest the lowering of the blood-sugar, &c., might be due, for example, to a slow, insidious poisoning of the liver cells, interfering in some way with the production of new sugar. Up to the present those of my cases that have done well lend no support to such hypothesis, but they do encourage a further and fuller investigation of the preparation.

In conclusion, I want to thank Dr. P. O. Ellison and Dr. H. H. Sanguinetti for valuable help with some of the cases, and Prof. F. Langmead for allowing me to make use of two of his patients. I am also very much indebted to Mr. W. H. McCallum, of Messrs. Allen and Hanburys, and medical friends on the Continent for so kindly assisting me to obtain the synthalin in sufficient quantities.

MIXED TUMOURS OF THE MOLAR GLANDS.

BY LIONEL R. FIFIELD, F.R.C.S.ENG.,
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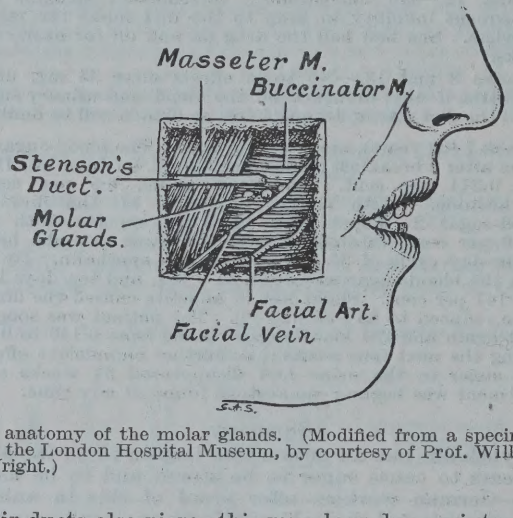
THE purpose of this contribution is not to deal exhaustively with the subject of mixed tumours. It is to draw attention to tumours of this nature arising in the cheek in connexion with the molar glands. In Choyce's "System of Surgery" the question of mixed tumours is summarised thus: "This group of tumours is most commonly represented by the well-known 'parotid tumour,' but others of essentially the same nature are met with in the submaxillary region, lip, palate, and orbit." No mention is made in this work or apparently in any other of the molar glands or the region in which they are found.

Anatomy of the Molar Glands.—The molar glands are about five in number and lie on the outer surface of the buccinator muscle grouped round the site of perforation of the latter by Stenson's duct. (Fig. 1).

FIG. 1.



The anatomy of the molar glands. (Modified from a specimen in the London Hospital Museum, by courtesy of Prof. William Wright.)

Their ducts also pierce this muscle and open into the vestibule of the mouth (Fig. 2). The glands are mainly mucous in character and are developed as solid buds of the buccal epithelium which grow outwards through the buccinator muscle branching frequently and becoming canalised.

It will thus be seen that the parotid gland may be looked upon as a molar gland that has grown backwards over the masseter muscle and become somewhat specialised in function.

Pathology of Mixed Tumours.—The pathology of mixed tumours has given rise to considerable discussion, therefore it will suffice to mention the following theories of origin: (*a*) They are teratoblastomata—i.e., tumours arising from a pluripotent cell which is capable of producing both epithelial and connective tissue structures. (*b*) They are endotheliomata. (*c*) They are developed from embryonic remnants of the branchial arches. (*d*) They are adenomata which may undergo malignant change. (*a*) and (*b*) are the two most popular theories.

Microscopically mixed tumours present myxomatous tissue, fibrous tissue, immature cartilage, and columns of cells which may be epithelial or endothelial in origin.

Clinical Features.

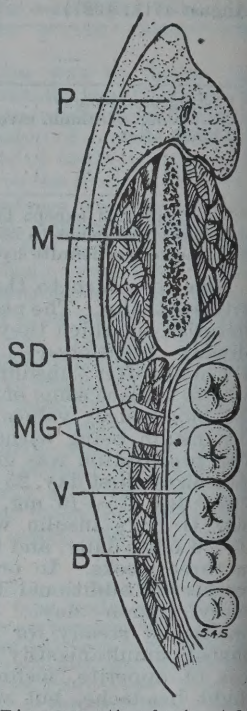
Mixed tumours usually occur in young adults and form slowly growing, firm, lobulated, sharply defined, freely movable swellings. They may grow slowly for many years, but at any time (even at first appearance) may take on rapid growth and infiltrate surrounding structures. The following cases may be cited as examples of mixed tumours arising in the molar glands:—

CASE 1.—A man, aged 20, was admitted to the Walthamstow, Wanstead, and Leyton Hospital under the care of Mr. J. H. Barrs with a lump in the left cheek. It had been present for two years but had been growing rapidly for six weeks. The lump was hard, the size and shape of a walnut, not attached to the skin nor the mucosa of the mouth; it extended forward almost to the angle of the mouth (Fig. 3). The tumour was removed by a horizontal incision through the mucosa from which it was found to be separated by a layer of muscle, the buccinator. It shelled out easily except at one place antero-inferiorly where it was adherent. On section there was a capsule from which some rather indefinite fibrous trabeculæ passed inwards. Between these there was gelatinous substance, a small yellow area 0·6 by 0·8 cm., and a red area of similar dimensions.

The microscopical report, by Dr. A. B. Bratton, was as follows: "The section shows a polygonal-celled carcinoma. The carcinoma cells resemble the epithelial cells of a mixed tumour. The connective tissue is abundant and fibrous, but in one area is hyaline and somewhat suggests fibro-cartilage. Therefore the carcinoma probably arose in a mixed tumour."

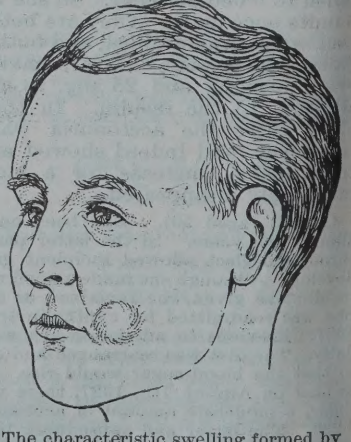
About one month after operation the tumour recurred, growing rapidly, infiltrating the tissues of the cheek, and becoming adherent to the mucosa and skin. X ray treatment was employed but apparently had no effect. The greater part of the tumour was, therefore, excised and radium inserted. This, however, will probably not prevent recurrence of such a highly malignant tumour. Dr. Bratton reported that microscopically the recurrence was a polygonal-celled carcinoma in which the carcinoma cells resembled the epithelial cells of a mixed tumour.

FIG. 2.



Diagrammatic horizontal section showing how Stenson's duct and the ducts of the molar glands pierce the buccinator muscle to open into the vestibule. P. = Parotid gland. M. = Masseter. S.D. = Stenson's duct. M.G. = Molar glands. V. = Vestibule. B. = Buccinator.

FIG. 3.



The characteristic swelling formed by a mixed tumour of a molar gland (Case 1).

CASE 2.—A woman, of 28, was admitted to the London Hospital under the care of Mr. W. S. Perrin with a lump in the left cheek. It had been growing slowly for five years and was quite painless. The lump was one inch in diameter, fairly hard, and had a well-defined edge; it extended forward to the angle of the mouth and was not attached to the skin or mucosa. It was removed by a horizontal incision through the mucosa and shelled out easily. Dr. W. W. Woods reported that microscopical examination showed a mixed tumour of a salivary gland. There has been no recurrence since operation which was one year ago.

I wish to express my indebtedness to Mr. J. H. Barrs, Mr. W. S. Perrin, Dr. W. W. Woods, and Dr. A. B. Bratton.

Clinical and Laboratory Notes.

GONORRHŒAL URETHRITIS IN MALE CHILDREN.

REPORT ON FOUR CASES.

BY B. BUCKLEY SHARP, M.B., B.S. LOND., M.R.C.S. ENG.,

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Gonorrhœal urethritis in males before the age of puberty is a rare occurrence. In the literature of the last 10 years I have found reference to only 45 cases. Alterthum,[1] in America, states that Stümpke collected seven cases and Wolbarst 22 cases. He himself reports 14 cases occurring between 1919 and 1925. In this series the ages ranged from 4 to 13 years. There were no infections of the posterior urethra or rectum, and no complications. As regards their ætiology, he divided his cases into the following four groups: (*a*) Direct genital contact; three cases, in one of which the source of infection was a domestic servant; while in each of the other two cases the source was a female child. (*b*) Sleeping in the same bed with infected persons, but no proof of genital contact; four cases. (*c*) Infection present in other members of the same family, but no evidence of genital contact, and no occupation of the same bed; four cases. (*d*) Source unknown; three cases.

Dryer and Rinhard each report a case of urethral infection in newly born male children 4 and 10 days old respectively, in one of which epididymitis developed. Erich Langer, in Berlin,[2] in a general survey of the subject, agrees that gonorrhœal infection in boys may occur without sexual intercourse. The other possible modes of contagion that he mentions are by sponges, towels, and lavatories, or by bathing with another infected child, which are also the ways by which female children are commonly infected. In older boys direct rectal infection may occur as the result of homosexual practices by men, direct rectal infection in younger male or female children being usually due to the use of infected thermometers or enema nozzles.

Clinical Records.

The cases that I have to report have occurred as follows:—

CASE 1.—A. B., aged 10, attended the Royal Northern Hospital on Dec. 10th, 1920, stating that he had had a urethral discharge and pain on micturition one month previously. One week before his first attendance he had been circumcised; so apparently the cause of the discharge had been attributed, in the first place, to balanitis arising from phimosis. He slept alone, and no source of infection was traced. Gonococci were found in the urethral discharge. He was given an alkaline mixture and irrigations of the anterior urethra with 1/8000 potassium permanganate solution. On Jan. 1st, 1921, he complained of pain in the back; but the discharge ceased that day, and the urine was clear two days later. After five days, however, pus was again found in the urine. On Jan. 19th the prostate was found to be enlarged and tender, and a periurethral abscess had developed proximal to the peno-scrotal junction by Jan. 26th. As this abscess did not drain into the urethra, and remained in statu quo in spite of fomentations, it was incised from the outside early in February. A sinus persisted, and did not finally close until July 7th after the passage of bougies, size 3–7 English, on many occasions. The prostate was found to have returned to normal on April 18th, though no special treatment had been applied to it and no irrigations of the posterior urethra given. The patient was finally discharged on Feb. 13th, 1922, bougies having been passed at increasing intervals up to that date.

CASE 2.—C. D., aged 6, attended the Hospital for Sick Children on June 25th, 1924, with œdema of the prepuce (a long one) and a purulent urethral discharge containing gonococci. Micturition was painful. The mother stated that the discharge was first seen four days before. The patient lived with his grandmother, and four young maiden aunts resided in the same house. He had two sisters, aged 5½ and 4 respectively, who were normal. He had been attending an infants' school, in which were male and female infants together. Irrigation of the anterior urethra with 1/8000 potassium permanganate solution was carried out daily. This was changed to 1/4000 oxycyanide of mercury after three weeks, at which time the first urine after anterior irrigation was found to contain pus, indicating that the posterior urethra was infected. Irrigations of the posterior urethra were then started. Five weekly doses of a stock gonococcus vaccine, ranging from 2½ to 50 millions, were given. The discharge ceased after five weeks of treatment, and the boy was allowed up. One week later the discharge recurred, and the anterior and posterior irrigations were recommenced. In addition, Nos. 3 and 4 English bougies were passed down as far as the compressor on one occasion. The prostate, which at this age is very small, felt normal throughout the disease. By Sept. 2nd all signs had permanently cleared up, and the patient was discharged as cured on Sept. 25th, after three months in hospital.

CASE 3.—E. F., aged 5½, attended the Hospital for Sick Children on Nov. 27th, 1924, with a urethral discharge containing gonococci. Pain on micturition had been present for five days, and the discharge for three days. He had a long prepuce with œdema and acquired phimosis. This boy lived in the same street as Case 2 and attended the same school. The source of infection may have been the same, though Case 2 was cured two months before Case 3 was attacked. The latter had two uninfected brothers and no sisters. Treatment consisted of first subpreputial, then anterior, and, after three weeks, both anterior and posterior irrigations with potassium permanganate solution, the strength being gradually increased from 1/6000 to 1/4000. No vaccine was given. The discharge had ceased in five weeks, but the urine still contained pus. Bougies, Nos. 6 and 7 English, were passed as far as the compressor on one occasion only, and three days later the urine was clear and remained so. The patient was discharged eight weeks after the commencement of treatment.

CASE 4.—G. H., aged 13, attended the Royal Northern Hospital on Nov. 4th, 1926, with a urethral discharge of five days' duration which was associated with pain to begin with. Gonococci were present. He had a long prepuce and congenital phimosis. He had been attending school, and slept with his brother, aged 10, who was not infected. He had two sisters, aged 15 and 17 respectively, who were alleged to be normal. The mother denied ever having had any vaginal discharge. He was treated in the same way as Case 3 except that 1/4000 oxycyanide of mercury was substituted for potassium permanganate. He still had a discharge five and a half weeks after the onset of treatment, so that a No. 15 French bougie was passed as far as the compressor. This increased the discharge temporarily, and gonococci were again found. Passage of bougies Nos. 15 to 17 French on two subsequent occasions cleared up all signs permanently. No changes were observed in the prostate. The patient was discharged after ten weeks.

Commentary.

In none of the above cases was the mode of infection or its source elicited. Cases 2 and 3 may have had a common source of infection. In each case there was a long—and in one case a tight—prepuce at the time of onset. Thus the gonococcus must have gained access to the preputial sac before entering the urethra in the case of congenital phimosis, and probably also in the other cases. This would tend to show that the contact with the source of infection was an intimate one. We have no proof that direct genital contact is necessary to produce infection in a boy, the opinion of other writers on the subject being to the contrary, though I have never come across a case in a man, after taking many hundreds of histories, where the infection had been acquired accidentally. We know, however, that in female children accidental infection without genital contact is the rule rather than the exception. Females over the age of puberty are much less susceptible to accidental infection, as the vulva and vagina (as opposed to the urethra and cervix) become resistant to the implantation of the gonococcus.

Two ways in which, in the case of boys, direct genital contact may come about are, firstly, seduction by an adult woman, of which I have come across two cases, though in neither of these was there any infection transmitted; and, secondly, attempts at sexual congress between male and female children. These attempts are probably imitative, and occur among the children of poor parents with whom they share the same bedroom and often the same bed. I have never

[1] Deutsche Med. Wochenschr., April 30th, 1926.
[2] Geschlechtskrankheiten bei Kindern, 1926.

heard of a case of gonorrhœa in a boy whose parents were well-to-do.

As regards treatment, this is approximately the same as in the case of an adult male. Prostatic massage would appear never to be required, while other complications such as iritis and arthritis do not occur owing to the rarity of prostatic infections. Epididymitis has only been once recorded, and then in a case of a newly born male infant. There has been only one case of periurethral abscess recorded (Case 1 in this series). Infection of the urethral glands undoubtedly occurs, and therefore it is necessary to pass a bougie along the anterior urethra once or twice towards the end of treatment.

Two to three months is the average period required for cure.

I am indebted to Mr. Kenneth Walker for permission to publish the cases that came under my care at the Royal Northern Hospital, and to Dr. D. Nabarro with regard to the cases at the Hospital for Sick Children.

A CASE OF
COMPLETE ABSENCE OF GALL-BLADDER AND EXTRAHEPATIC BILE-DUCTS.

BY NORMAN H. HILL, M.D., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO THE BELGRAVE HOSPITAL FOR CHILDREN AND TO THE METROPOLITAN HOSPITAL, LONDON.

THE following case is, I think, worthy of record as illustrating one of the rarer forms of congenital anomalies of the biliary tract.

A female infant, aged 4 months, was admitted to the Belgrave Hospital for Children on account of jaundice. She was an only child; the parents were alive and in good health; there had been no miscarriages and no history of tuberculosis.

Past History.—Full-term child; normal labour. Jaundice was noticed on the fourth day and persisted. The child was breast-fed and gained weight steadily, the only digestive disturbance being a little flatulence and vomiting, which occurred a fortnight before admission and lasted only two days. The stools were described as white in colour, but became very dark for a day or two about three weeks before admission to hospital. The parents did not notice anything abnormal in the colour of the child's urine, and stated that the napkins had not been stained.

On *examination* the child seemed well nourished, her weight being 11 lb. 12 oz. The skin was of a moderately deep icteric tint and the sclerotics were of a deep yellow colour. There were no cutaneous hæmorrhages and the mucous membranes were rather pale. The fontanelle, heart, and lungs were normal. The abdomen was somewhat enlarged. The liver could be felt three fingers-breadth below the costal margin; its edge was sharp and hard. The spleen was palpable.

During the four days following admission the child seemed well and contented and gained 2½ oz. in weight. Breast-feeding was continued. The stools were consistently pale and contained no bile pigments, whilst the urine was dark and contained both bile salts and pigments.

Examination of the blood gave the following results: Red blood corpuscles, 4,892,000; white blood corpuscles, 13,000; hæmoglobin, 77 per cent.; colour-index, 0·79. Films showed some anisocytosis and poikilocytosis. The differential count showed: Polymorphonuclears, 42·2 per cent.; lymphocytes, 46·6 per cent.; myelocytes, 2·8 per cent.; and eosinophils, 8·4 per cent. The fragility of the red corpuscles was normal. Van den Bergh's tests gave a biphasic reaction.

Some slight ecchymosis occurred around the points from which blood was taken, but there were no gross hæmorrhages. The jaundice seemed to vary in intensity from day to day slightly but definitely. On the fifth day the child had a profuse melæna, two of the stools giving a strongly positive guaiac and benzidine test, and showing red corpuscles microscopically. On the sixth day she was paler and weaker and had two quite copious hæmatemeses. From this time onwards there was much melæna and frequent hæmatemeses. The child's condition rapidly deteriorated and she died on the tenth day.

Findings at Autopsy.—With the exception of bile staining no abnormality was found in any of the organs other than the liver and its appendages. There was no ascites. Examination of the brain was not permitted.

The liver was enlarged and of an olive green colour. It was very hard and its surface was definitely granular. There was some irregularity of the anterior border of the left lobe. The duodenum was normal, the papilla was present, and the pancreatic duct was patent. The lymphatic glands which drained the liver were all deeply bile-stained. The gastro-hepatic omentum was in its normal position, as were also the portal vein and the hepatic artery. No trace, however, of the common bile-duct could be found, not even the fibrous cord which so often represents it in these cases. There was no cystic duct, no gall-bladder, and no extrahepatic bile-ducts, neither were any remains of these structures discoverable. The spleen was only slightly enlarged, although easily palpable during life. The pancreas appeared normal.

Microscopical Examination.—The liver showed an extensive cirrhosis mainly in the portal areas in which bile-ducts were numerous. Some of these were distended with bile and some of the larger ducts showed desquamation of their lining membrane and infiltration of the surrounding tissue with small round cells. Areas of liver tissue were cut off as in portal cirrhosis, but bile could be seen in the finer biliary radicles, some of which were considerably distended. Some areas of liver had undergone acute necrosis and these were particularly bile-stained. The pancreas showed a slight degree of fibrosis, but otherwise appeared normal. The lymph glands and other organs showed no abnormality.

Comments.

The abnormality most often reported in cases presenting similar symptoms is a common bile-duct impervious or deficient at some part of its course. Other cases described range from these conditions to complete absence of all extrahepatic bile-ducts and gall-bladder, intermediate cases presenting every variety of abnormality. J. B. Holmes [1] has collected over a hundred published cases of congenital obliteration of the bile-ducts and has given diagrams of the conditions found.

The pathology of the condition has been disputed, and several different theories put forward to account for it. Syphilis and fœtal peritonitis have each been held responsible, though why the results of these two conditions should be limited to the liver and its appendages it is difficult to see. John Thomson [2] considered that there was, to begin with, a congenital malformation of the bile-ducts due to defective development, and that interference with the outflow of bile caused catarrh and finally blocking and obliteration of the ducts, the cirrhosis of the liver being a secondary manifestation. Sir Humphry Rolleston and L. B. Hayne [3] regarded the condition as primarily due to poisons derived from the mother and conveyed to the liver of the fœtus, where they set up a mixed (portal and biliary) cirrhosis and a descending obliterative cholangitis analogous to obliterative appendicitis. In support of the theory of the maternal toxin is the fact that there are several recorded cases of parents having more than one child similarly affected, and in Thomson's series there were two such cases. In no case, however, has the mother shown evidence of such toxins.

Stanley Wyard [4] suggests that the condition may be due to an ascending cholangitis due to a toxin which is a constituent of a pathological liquor amnii. Holmes says:—

"It would seem that the cause of congenital atresia of the bile-ducts must be sought, as a rule, in a faulty development from the primary tissues. What the causes of this are we scarcely know. They are doubtless the same as those operative in the production of atresias of other tubular structures."

Leonard Parsons and Evelyn Hickmans [5] consider that

"whatever be the cause of the condition it is one which attacks the liver parenchyma at as early a stage as the bile-ducts, and offers definite evidence that the whole process may be an intrahepatic one."

As regards treatment Holmes suggests that as in 16 per cent. of all the cases he collected the anatomical relations were such that operative relief was theoretically possible, the biliary tract should be explored as soon as the diagnosis is sufficiently established, with a view to making an artificial opening for the bile to reach the duodenum, in consideration of the otherwise hopeless nature of these cases.

[1] Amer. Jour. Dis. Children, 1916, xi., No. 6, p. 405.
[2] Edin. Med. Jour., 1891–92, xxxvii., 523, 604, and 724.
[3] Brit. Med. Jour., 1901, i., 758. [4] THE LANCET, 1914, ii., 495.
[5] Amer. Jour. Dis. Children, 1926, xxxi., 461.

BRITISH MEDICAL ASSOCIATION.

ANNUAL MEETING AT EDINBURGH.

(*Continued from p. 608.*)

SECTION OF PATHOLOGY AND BACTERIOLOGY.

WEDNESDAY, JULY 20TH.

THIS Section met under the presidency of Prof. J. LORRAIN SMITH (Edinburgh). On the first day Dr. ARCHIBALD LEITCH (London) opened a discussion upon

GROWTH IN ITS PATHOLOGICAL RELATIONS.

He pointed out that in extra-embryonic life, in general, the reproductive powers of the cell become markedly restricted, this varying in degree with different tissues—the power of growth sometimes being absent and at other times constantly present. In the body this process of cell production, however manifest, is always under rigid control and at no time lawless. Although, as tissue culture experiments show, this proliferation may become limitless in an alien environment, when restored to the body the cells once more conform to the very rigid laws controlling their multiplication. In wound repair the more obvious process was that of proliferation, but that of inhibition, controlling the amount of new tissue produced, was hardly less mysterious. The boundaries between reparative growth, hyperplasia, and neoplasia were ill-defined and no rigid separation was possible between benign and malignant tumours. He held that the cell in neoplasia had no altogether new properties differentiating it from those found in reparative processes, which led him to the conclusion that tumours arise only in those cells capable of multiplication in post-embryonic life, and that if other elements than these are present, they are derived from fœtally segregated cells in Cohnheim's sense of the term. It was possible that in many of these apparent exceptions the appearance of such tissues as bone and cartilage were due to the rather remarkable process of metaplasia possessed by the connective tissue cell. The totally different behaviour of malignant cells in the body could only be explicable along two lines—either that they had become associated with an adjuvant—the parasitic theory lately developed by Gye and Barnard—or that they had developed in an advanced degree an already existing property. Referring in detail to the former hypothesis, he declared that it was entirely based upon experiments carried out with a single variety of growth, the Rous sarcoma of fowls—a growth whose true nature had never been agreed upon. Its properties were peculiar and were shared with no other form of neoplasm. Gye and Barnard's thesis turned upon the true sarcomatous nature of this growth, and also upon their claim to have cultivated a virus from other neoplasms; if either fact were incorrect their theory became void. With regard to the first point, the peculiar characters of this tumour distinguished it from all other growths. Whilst unable to give it a definite apellation, Dr. Leitch did not regard it as a sarcoma but rather as a spreading necrobiotic process of unknown origin. Even in the smallest nodules of the growth the necrotic process followed fast upon the neoplastic. Turning to the experiments in which the activation of chemically inactivated extracts was produced by what were presumed to be cultures of the virus, Dr. Leitch remarked upon the natural great variability in activity of the Rous tumour extracts. Two injections of the same material—treated by chemical destructive agents so as to reduce its activity to near vanishing point—injected into the same bird might give totally different results; the one a tumour, the other nothing. Many other conflicting factors were at work which could determine the appearance or non-appearance of tumours when extracts of almost extinguished activity were used. The borderline between total destruction of the activity of extracts by chemicals and the damage necessary for the removal of the virus portion was narrow. In some experiments the so-called chemical factor alone gave rise to tumours, in others the combination of the two supposedly essential factors failed to produce a tumour. In conclusion, the speaker held that there had been no clear demonstration of a dual nature of the infecting agent and, therefore, no demonstration of a virus of cancer. The one other form of mouse sarcoma which, according to Gye and Barnard, was filtrable had not shown this property in the hands of other investigators.

Cell Proliferation.

Prof. ROBERT MUIR (Glasgow) dealt with the processes of cell proliferation in general. The subject, he said, had been extended of recent years by means of experiments upon tissue culture and upon the filtrable viruses. Dealing with the process of repair, he criticised the assumption of special substances (trephones) being concerned in this process. There was no evidence for such a phenomenon under normal conditions within the body, and a strict application of the results of tissue cultures to the processes of repair was not permissible. When proliferation stopped, in the healing of a wound, was it to be assumed that the supply of such substances also stopped simultaneously? The probability was that the supposed trephones were only food substances. In hypertrophy the demand for overgrowth must originate in the cells themselves. Hyperplastic conditions might pass over into tumour formation, as in the hepatomas and carcinomas arising in cirrhosis of the liver; in these cases the neoplastic focus would appear to start in the centre of the hyperplastic area and away from the reactive process. Dealing with tumours, he said that the future method of division was likely to be into filtrable and non-filtrable groups; the former group, though now small, might grow more extensive. In the large group of non-filtrable tumours he differentiated (*a*) those due to irritation, and (*b*) those attributable to developmental influences. The former followed upon a long history of irritation and were simple in their histological structure. The latter were often complex and were to be recognised rather by their character than by their site of growth; they were tumours which often appeared at an early age, as, for example, the neurocytomas and the blastocytomas. It was quite possible for apparently similar tumours, evolving in the same way and clinically indistinguishable, to originate in both of these classes, as, for example, the hepatic carcinoma of cirrhosis and a case he had recently observed of a malignant hepatoma in the otherwise healthy liver of a child.

Prof. SHAW DUNN (Manchester) referred to the difficulty in framing a definition of tumours so as to exclude such conditions as Hodgkin's disease and mycosis fungoides. The very definite effect of irritants, confirmed by animal experiments, provided a means of understanding the genesis of certain growths; those of the mouth and possibly many others of the alimentary canal were attributable to this influence. Other tumours seemed to show a capacity for originating in damaged organs—e.g., those of the liver referred to by the previous speaker—the hypernephromata, which seldom seemed to take origin in an entirely healthy kidney, and the epitheliomata originating in scars. The frequency with which malignant tumours developed from simple ones was uncertain, but the evidence in many cases was clear. Polyposis of the large intestine was a case in point; this was often a familial disease and in about 50 per cent. of the subjects cancer developed. Prof. Shaw Dunn cited other examples of hereditary and familial conditions associated with carcinoma. Of special interest, though a rare condition, was xeroderma pigmentosa; in this condition light was known to be the accessory factor in producing carcinoma and could be controlled.

Prof. M. J. STEWART (Leeds) discussed the question of tissue displacements and their connexion with tumour growth. The most widely known of these was the adrenal rest, which, however, was frequently met with in situations other than the kidney. In a recent large series of post-mortem examinations he

had noted eight of these formations in the liver, six in the broad ligament, five in the spermatic vessels, one in the epididymis, and one in the testicle. These findings were of importance in connexion with the Grawitz view of hypernephromata, against which he summarised the following facts: (1) that some of these tumours show lumen formation, either with or without the adrenal type of cell; (2) that true hypernephromata do not appear to arise elsewhere than in the kidney; (3) that they are not associated with virilism which as Glynn had shown is so prominent a feature of true adrenal tumours; and, finally, (4) that the Grawitz tumour is equally common at both poles of the kidney, whilst the adrenal rest is especially found at the upper pole. Prof. Stewart further described the epithelial heterotopias of the alimentary tract and discussed the possibility of their being the origin of malignant disease; for this he contended there was no evidence. He thought that the occurrence of teratomata, apart from those of the sexual glands, gave general support to Cohnheim's theory.

Prof. E. H. KETTLE (Cardiff) thought that the discussion came at a most difficult stage in our knowledge of tumour growths. Some years ago most of the more disturbing facts of the present day were unknown and some years hence their bearing on the general problem would doubtless be better understood. He felt great doubts about the supposed essential similarity of the processes of innocent, malignant, and hypertrophic growth. Growth and proliferation were not identical processes. The work of T. S. P. Strangeways tended to show that mitosis in some cases was a reaction of the cell towards an altered environment and that in this plastic state it is more adaptable. Hence different types of cell proliferation doubtless exist, diverted towards different ends, and similar distinctions may be ultimately be drawn amongst tumour processes. He refused to regard the pathological investigation of the processes of abnormal growth as a dead subject, and considered that renewed application of the analytical method to such conditions might lead to an ultimate recognition of immediate causes.

The PRESIDENT, in closing the discussion, said that he was in agreement with Prof. Kettle that in growth there were many phases. In the division of certain cells—as, for example, those of the rete malpighii—one of the progeny was destined for growth and differentiation, the other retained the capacity for further pululation. There were therefore two processes to be distinguished—growth and proliferation. It was an unanswered question in which of these phases cancer affected the cell.

THURSDAY, JULY 21ST.

The meetings on the second and third days of this Section were conjoint meetings with the Section of Comparative Medicine. On July 21st Prof. T. J. MACKIE (Edinburgh) presided over a discussion on

IMMUNITY.

Dr. R. A. O'BRIEN (London), in opening the discussion, said that he desired to deal especially with the practical or applied side of the subject and to review the recent solid achievements and future problems. It might be said that among the achievements of modern medicine were the practical abolition, from this country at all events, of typhus, cholera, dysentery, typhoid, and plague. Here credit must be given chiefly to the hygienist and sanitarian, with the immunologist in the second place, and the clinician last. In the future he believed that most credit for advances would go to the immunologist, who to his other weapons was adding that of the experimental investigation and control of epidemics. The importance of food factors in this connexion was very great, since it was frequently found that the germs of epidemics could remain living, but inactive, in animal communities provided the nutrition of these was duly maintained; but when diet became insufficient or ill-balanced an outbreak of infection speedily followed. The hollow needle, as a weapon of offence and defence, was already firmly established both in animal pathology—for example, in swine fever, roup, rabies, rinderpest, and in the human subject in connexion with enteric prophylaxis, tetanus, diphtheria, and rabies. Reviewing the agents utilisable for this purpose he instanced preventive vaccines; these had sometimes been employed in the living state, but which in the future he considered would be universally replaced by dead vaccines. The latest advance in this direction was the use of Calmette's B.C.G. in tuberculosis; about the value of this agent very contradictory opinions had been expressed. In all vaccines of this type there was a deplorable lack of agreement as to dosage and a total absence of any official standards of activity. A second method of producing immunity was by the injection of bacterial filtrates. In nurses employed in fever hospitals the introduction of this method of affording protection against scarlatina gave striking results; the same could be said of diphtheria. In veterinary pathology the method was the one now employed in connexion with braxy and black-leg. A third method was the use of toxoids and allied substances, which were found to give a solid immunity in diphtheria. The use of toxin-antitoxin mixtures had been largely developed, extended, and varied since its introduction by Theobald Smith in 1907. In applying this method it was all-important to choose a correctly balanced mixture of toxin and antitoxin. Excess of the one would produce disastrous results and of the other merely passive immunity which was not the desideratum. The position might be well illustrated by the results of giving immune serum (convalescent) to children in measles. Administered early in the incubation stage it prevented any development of the virus and conferred a purely passive immunity, merely postponing the evil day of infection. Given when the disease was declaring itself it had little but a slight therapeutic action. Given in an intermediate stage it had the effect of aborting the disease whilst such infection as did take place induced an active immunity in the child, sufficient to guard against future infections. In discussing some of the current practical problems of immunisation the speaker referred to the puzzling phenomenon of local infections occurring in highly immunised animals; this phenomenon, he said, was well illustrated in anti-pneumococcus immunity.

Prof. C. H. BROWNING (Glasgow) commented upon the enormous growth of the literature of immunity in recent years. The study of the serum reactions dated from the discovery by von Behring of antibody in this cell-free body fluid. Prof. Browning proposed to discuss (1) antigen-antibody reactions, their phenomena and the questions arising out of them; (2) the part played by immunity in chemotherapeutic action; and (3) Ehrlich's receptor theory. Antigen antibody reactions were usually evidenced by some physical alteration in the mixture and hence a series of "indicators" might be recognised and correlated with the reaction; amongst these "indicators" lipoids played an important part though not an essential one. With regard to the nature of anti bodies, there was some evidence that immune bodies might differ qualitatively as well as quantitatively immature hæmolysin having properties different t those of the mature product. The essential factor i calling out the antibody was the injection of th antigen, but in any conception of the process th occurrence of natural antibodies must be borne i mind; their presence was in some cases entirel inexplicable, and they might be termed "metaboli accidents." He believed, from evidence brough forward by a variety of workers, that the commo prototype of immune antibodies exists normally i blood plasma, in a relatively undifferentiated stat and that it undergoes a specific modification d development in the process of immunisation with a antigen. The scanty evidence available went to sho that antibodies were definite substances in the serum but that the complement might more correctly b regarded as a physical state of that body. Recentl there had been a tendency to identify the reticul endothelial system with the production of antibodie but the results of experiments were inconclusive an

attempts to lower an animal's resistance by "blocking" the cells of this system with dyes had showed that this result had not the effect in diminishing resistance which it should have if this system were of prime importance. Antigens had, up till recently, been looked upon as protein in nature, but some results had been obtained showing that lipoids and carbohydrates might exert this function. The nature of specificity was still obscure, but H. H. Dale's experiments with racemised albumins showed that specificity was connected in some cases with the order of the amino-acid linkage. In regard to chemotherapy, animals cured of trypanosome infections frequently showed some degree of subsequent immunity, which could be produced by this means alone. The immunity response, therefore, seemed to be intensified and intimately linked with the drug's action, since other trypanosomicidal agents did not produce the same result. In conclusion, Prof. Browning urged the restoration of Ehrlich's receptor hypothesis to something approaching its former pride of place, since he maintained that in its broader aspects and shorn of its later-day trimmings it formed the most satisfactory working hypothesis for the manifold facts of immunity.

Prof. ROBERT MUIR gave a general review of the problems of immunity; the phenomenon, he said, involved changes in the living cells and in the serum, to the last of which most of the attention given to the subject had been paid. A multitude of laboratory reactions, agglutination, precipitation, complement fixation, &c., had been evolved, most of which were the physical evidences of combination between antigen and antibody. This was the essential fact of these reactions and, on the whole, its nature appeared chemical rather than physical. The varied types of antibodies had received various names for convenience, but Prof. Muir suggested that the serum antibodies were not a set of disjointed entities but a single entity with distinct moieties. A similar conception might be applied to complement. Differences in antigenic action were due to minute differences in structure of the antigens. There was no common antibody for bacterial protoplasm, but closely related bacteria were antigenically distinct and similar individual differences might be met with between the cells of animals of the same species, as had been shown by Ehrlich and Morgenroth for the isolysins of goats. Did the body produce something corresponding to every possible variation of antigenic substance as Ehrlich's hypothesis suggested? Prof. Muir discussed the possibility of the dissociation of antigen and antibody from combination in the body and adduced evidence for the occurrence of this dissociation. The local immunity of tissue, upon which Besredka had recently insisted, was an important consideration and worthy of full investigation.

The Relation of Sensitisation to Immunity.

Prof. E. L. OPIE (Philadelphia) spoke of the relation of sensitisation to immunity, which was a very puzzling phenomenon. In animals in which an injection of antigen produced the Arthus phenomenon, the antigen became fixed at the site of this reaction and did not pass into the body; this was therefore a protective effort guarding more vital organs from the dangerous results of anaphylaxis. The phenomenon was capable of reversal and an animal could be sensitised with antigen so that it showed the phenomenon following on a local injection of antibody. A like result was obtainable in the case of generalised anaphylaxis. The conclusion was that wherever and whenever antigen and antibody met, a reaction occurred the nature and extent of which was determined by the physiology of the tissue involved, so that such diversified results as the Arthus phenomenon or general anaphylaxis might take place. He thought that all immunity phenomena were matters of importance to the animals concerned and doubted if such a thing as a "metabolic accident, described by Prof. Browning, ever occurred.

Colonel W. F. HARVEY (Edinburgh) detailed a series of experiments carried out by him in India in order to study some of the factors influencing the immunity conferred by vaccines, with especial reference to reinoculation. The work had been done upon pigeons, the organism of fowl cholera being used as the infecting agent. He showed that in the conditions described immunity only lasted for about five months and that for reinoculation a dose considerably smaller than the initial one gave a satisfactory result; further, that the reinoculated animals retained their subsequent immunity for a longer period than those receiving a single treatment. He suggested that an animal once inoculated always bore the impress of this procedure and never afterwards reacted quite like a normal one.

Prof. D. C. MATHESON (Edinburgh) spoke briefly upon the question of practical methods. Living vaccines were used in immunisation against epizoötic abortion and also in pleuro-pneumonia in bovines. The general principle was to introduce the virus at a site remote from that in which it normally flourished, and where conditions must be considered unfavourable for its life. The procedure of immunising the mother in lamb dysentery was a new one. In the bacillary white diarrhœa of fowls the carrier birds could be detected by the agglutination test and healthy chickens reared from the eggs of uninfected birds.

Dr. HEDLEY WRIGHT (London) said that acquired immunity was generally the result of antibody activity, but in recent work there was a strong suggestion that a local cellular immunity might exist. In pneumococcal infections the general immunity appeared rapidly, whilst the demonstration of antibodies was difficult; this was simply a result of deficiencies in technique. Changes in the way in which organisms grew in the blood of the animals gave earlier evidence than the accepted immunity reactions. In his opinion the evidence for the existence of a cellular immunity was slight. Dealing with the local infections of highly immunised animals as, for example, the cardiac valves in ulcerative endocarditis, the organisms in this case were relatively avirulent, and the immunity of the patient high. The inability of the latter to deal with the organisms was, in the speaker's view, an anatomical one, the organisms on the cardiac valves being shielded from the ordinary attack. Septicæmias were of different types in accordance with the state of the subject's immunity. In some cases the organisms multiplied in the blood, in others, as in the case of endocarditis, they tended to die out.

Dr. W. H. ANDREWES (Ministry of Agriculture) discussed immunity in veterinary medicine. The vaccine of contagious abortion was eliminated rapidly unless the animal was pregnant, when the organisms persisted in the uterus, or unless the mammary glands were active, when the organisms persisted over long periods in the milk. In trypanosome infections a chemotherapeutic agent might be curative in an infection of a normally resistant species, but inert in a susceptible one. Hygienic measures were largely responsible for improved conditions amongst animals in tropical countries and in South Africa horses, sheep, and goats could now be kept in many districts in which formerly this was impossible. In veterinary medicine the economic problem was the directing factor, and therefore the pole-axe was often preferable to the immunising syringe. In such diseases as glanders and rinderpest, in this country, the use of the former instrument was advisable.

Prof. MACKIE said that one of the chief obstacles to further advance in this field was our lack of information as to the weapons of offence and defence possessed by the organism as distinct from the host. Investigations tended towards an elaborate analysis of antibody reactions and the main problem was lost sight of. Natural immunity, a most important phenomenon, could only rarely be attributed to this means of defence and solid immunity might coexist with an absence of antibodies. He did not think that the field of colloidal chemistry, into which present investigations were leading, was one in which much knowledge could be gained of the processes of resistance to disease.

FRIDAY, JULY 22ND.

On the third day of the meeting, Principal O. CHARNOCK BRADLEY being in the chair, Prof. BASIL BUXTON (Cambridge) opened a discussion upon the

ASPECTS AND PROBLEMS OF COMPARATIVE MEDICINE.

He said that at the present time general agreement existed as to the value and desirability of the study of comparative medicine. By many this was regarded as a new movement, but it was not so. Actually steady progress was going forward in comparative medicine, but the necessities of modern medicine, leading to division of labour and specialisation, resulted in widespread general ignorance of what had been and was being done. Great progress had been made especially in the tropics, where, under the pressure of economic conditions, adequate facilities had been forthcoming for the investigation of diseases caused by protozoa and invisible viruses. In comparative pathology that coöperation between specialists in human and animal medicine was essential. Such collaboration need not be limited to the study of diseases common to man and animals, although where such a relationship existed it enormously facilitated the investigation of such diseases. Tuberculosis and the study of tumours were notable examples; everyone was familiar with the great gain to man accruing from the study of the variolas of lower animals. It happened sometimes unfortunately from the experimental point of view that organisms causing disease in man were non-pathogenic to the lower animals. Here a comparative study of closely resembling conditions, such as canine distemper and influenza, might yield valuable results. Again, the investigation of animal diseases due to invisible viruses, rinderpest, foot-and-mouth disease, and distemper, were yielding methods of immunisation which might prove of great interest and utility in human disease. As an outcome of the study of the anaerobic infections of man, which had been largely stimulated by the war, he predicted a more intensive and fruitful study of these in the lower animals. It was probable again that certain diseases in animals kept under apparently normal conditions were due to deficiency in accessory food factors. It was still doubtful as to what extent experimental results with one animal in this connexion were applicable to other animals and to man. White rats were little affected by the absence of vitamin C from their diet, but bred ill under such conditions. In general the picture of deficiency diseases varied with the species. More important than the actual deficiency diseases themselves were conditions resulting from minor degrees of deprivation, leading to lowered resistance to bacteria; under such conditions organisms normally present in the animals and producing no ill-results, might assume pathogenic properties. The importance of mineral metabolism was great in animal pathology; pastures with a low mineral content being of little nutritional value for sheep, the reproductive capacity of these animals grazing on such pastures was low and the percentage of deaths amongst the offspring high. Amongst other facts recently discovered from metabolic investigations was the realisation of the bacterial defence conveyed to young animals by colostrum; there was a high iodine content in this material and the feeding of iodide to mares would prevent joint-ill in foals. Prof. Buxton thought the question of the relation of iodine to the immunity of the newly-born animal worthy of investigation. Another subject which offered a wide field for research was the physiology of reproduction, which was being studied at the Animal Nutrition Institute at Cambridge. One of the largest subjects in human medicine was that of immunity, and in particular artificial immunity. Here animals were essential because only on them could the necessary critical experiments be made, whilst the subject was of no less importance in veterinary medicine in the control of epizoötic and enzoötic diseases.

Dr. ANDREW BALFOUR (London) commented upon the manifold problems connected with the subject under discussion. Human and veterinary medicine were essentially one; this union was best seen in the domain of tropical medicine in which divorce had never taken place and the subjects were historically connected. He recalled the fact that in the very room in which he was speaking 25 years ago an amazed audience had listened to Manson's announcement of the discoveries of Ross in elucidating the mysteries of malaria. What had been his subject? Sparrows, mosquitoes, and protozoa! From a study of tropical trypanosomiasis sprang a large part of modern chemotherapy. Comparative investigations had also led to the elucidation of helminthology, bubonic plague, and other diseases. Human tropical medical research depended upon the pursuance of the experimental method and a close relation between the veterinarian and the medical man. In all experimental work in these fields a better knowledge of veterinary work would be a great boon to the worker upon human diseases, who often was largely ignorant of the natural ailments of his experimental animals and might be led into error by his ignorance. In tropical medicine he saw the beginnings of a cleavage between the two subjects which was extremely undesirable. It was of course necessary in routine work, but in research human and veterinary studies should combine and should be housed under the same roof. He welcomed the establishment of a section of comparative medicine by the British Medical Association as a forward step.

The Filtrable Viruses.

Dr. ANDREWES said that one of the chief of the current problems in veterinary medicine was that of the filtrable viruses, in this country in reference to distemper and foot-and-mouth disease and in other parts of the world in connexion with rinderpest, African horse sickness, &c. Little could be done in any of these maladies except to demonstrate the presence of the infecting agent and in certain cases to produce some degree of immunity. An advance in any one of these diseases would herald a general advance in our knowledge of the others. Deficiency diseases were of importance in the pig, the dog, and in poultry, but not of noteworthy importance in other animals, least of all in the herbivora. Cattle, sheep, and horses were unlikely to be in conditions which would engender an avitaminosis and experimental efforts to produce this in cattle had failed. Veterinary pathology had the great advantage over medical pathology that the worker could utilise the animal in which the disease naturally occurred in his experiments. Great caution was necessary in applying results obtained with one species to others. This danger was exceedingly well exemplified in drug reactions and vegetable intoxications familiar to veterinarians, and even more so in bacterial infections.

Prof. J. LORRAIN SMITH welcomed the institution of the Section of Comparative Medicine. The application of the experimental method was essential to the solution of any problem in medicine. The first light shed upon cirrhosis of the liver, a disease long wrapped in mystery, was gained from the investigation of a disease of cattle in Africa. As a result of experiments we were to-day able to reproduce all phases of cirrhosis of the liver by the application of tar to the skin of animals. From being a disease enveloped in mystery it was now one which could be produced at will. In like manner arteriosclerosis in animals could be produced by varying their diet. Our modern knowledge of diabetes depended upon an experiment on the dog performed by Minkowski in the 'eighties. By application to the experimental method we were widening our conceptions, which was a greater gain than the mere incidental triumphs of pathology or bacteriology.

Prof. C. H. BROWNING said that in studying disease we should free ourselves of the common notion which regarded animals in the light of a defective man and a substitute for him in experimental investigations. To be approximately accurate it was necessary to comprehend a great deal about the animal's physiology and pathology. We tended to regard medicine too much through the eye of the rabbit! We lightheartedly constructed groups of bacteria from results obtained with the serum of the rabbit, whilst

with another species of animal the same types might not emerge. Too close attention to details of this sort constituted a bar rather than a help to progress.

Coöperation between Medical and Veterinary Professions.

Mr. J. MCALLAN (Veterinary Department, City of Aberdeen) said that coöperation between the medical and veterinary professions was of paramount importance to public health. The services of a veterinarian were essential in order to preserve the public from bad food supplies. The medical officer of health should be the administrative head of the department and the veterinarian under him should have control of meat inspection and the milk-supply. The control of tuberculosis in cattle was a matter for combined work between the two divisions, the veterinarian being responsible for the field work; in this capacity he should supervise the production of a clean milk-supply.

Prof. MATHESON spoke of his work in connexion with the Zoological Society of Scotland, where, for the last 14 years, he had been responsible for post-mortem examinations upon all animals dying at the Zoo. Anthrax was excluded before the examination was proceeded with. Intestinal obstruction was a common finding. Tuberculosis was present in a large number of birds, being found in about 10 per cent. of domestic poultry. With regard to tumours, in the first 12 years of this work he only encountered one tumour, a renal growth in a monkey, but in the last two or three years a few more had been seen; they were not uncommon in domestic animals. Gastric cancer and cancer of the alimentary tract or mouth was rare in the lower animals. Papillary overgrowths, akin to those found in coccidiosis of the liver in rabbits occurred in the galactiferous ducts of cows which were the subjects of mastitis.

Dr. R. A. O'BRIEN said he was much impressed with the value of coöperation between the veterinary and medical sciences. It was necessary that money should be forthcoming to advance research, and here the value of field work gained a more ready appreciation and elicited a quicker response than did the less obviously useful academic research. To prove even minor points in animal experiments the difficulties were great and, as in all biological research, large masses of material were a necessity if results were to be reliable. The score of expense was a heavy one. In field experiments the necessary conditions could only be obtained by the coöperation of owners who were often unwilling to coöperate in the conditions requisite for a properly controlled experiment; their point of view was easy to see. He thought this was largely a matter of education and not insurmountable.

Dr. T. G. NASMYTH (Edinburgh) desired to make a confession of his faith in the present and future of comparative medicine in which he had been engaged since, 55 years ago, he first studied veterinary medicine on the farm as a medical student. Years ago he had made the discovery that horses in coal-mines did not suffer from tetanus, the explanation of which had only been forthcoming much later. The outstanding problem in relation to epidemics and epizoötics was the factor he would label "Z." The organisms and the subject existed side by side—some of us were carriers—and yet only occasionally did epidemics occur. Leprosy, cholera, and typhus had disappeared; yet many of the conditions under which they flourished still remained. He strongly advocated that veterinary colleges should become part of the universities and that research into the therapeutics as well as into causation of animal diseases should be prosecuted in veterinary colleges.

Dr. F. A. E. CREW (Edinburgh) said that it was unnecessary to demand coöperation between the two professions since it was always forthcoming between individuals when the need existed and was lacking only in administrative departments. He agreed that controlled experiments with the human subject were impossible, but, as a believer in the universality of biological processes, he held that these could be adequately carried out with other genera. The object of the present discussion, as he saw it, was to proclaim aloud to those in power, bureaucrats and therefore presumably lacking in knowledge and of doubtful morality, that such coöperation was necessary and that it was for them to provide the necessary facilities and money. He believed that the future evolution of man and of animals was within human control, and that by attention to resistance and natural immunity it might be possible to develop disease-resisting strains.

Mr. POOL referred to the contributions made by bacteriology to our knowledge of animal disease. Mastitis in cattle was an infectious disease, associated with the presence of streptococci, upon which further knowledge was desirable. He made a plea for patience in research work and strongly deprecated the hasty issue of ill-considered reports, under pressure from departments which subsidised research. A little more consideration and maturity would greatly add to the value of many articles.

Mr. T. W. M. CAMERON (London) raised the question of the meaning of comparative medicine. It was not synonymous with the study of diseases which man shared with animals, but a comparison of the results of investigations made over the many fields of medicine. Comparative pathology should be a subject apart and not an appendage of human pathology and bacteriology. It was the study of such processes as the varied appearances due to infection with the tubercle bacillus in different species and the evolution of the hydatid cyst which he understood by comparative pathology.

Prof. M. J. STEWART, Dr. DUNNE, Major G. W. DUNKIN, and Prof. E. GLYNN also contributed to the discussion.

SECTION OF PREVENTIVE MEDICINE.

WEDNESDAY, JULY 20TH.

THIS Section met under the presidency of Prof. P. S. LELEAN (Edinburgh) to discuss

PUBLIC HEALTH ADMINISTRATION.

The main question considered was whether all health administration—e.g., in towns, schools, and factories—should be concentrated in a single department, and whether the immediate control in each executive area should be vested in a single individual.

Dr. A. S. M. MACGREGOR (Glasgow) said that a rigid separation between curative and preventive medicine could no longer be maintained. The size of the unit lay at the root of the problem. Larger local authorities could apply the numerous public health measures, whereas small authorities could not carry out their duties efficiently. The MacLean Committee (1918) had recommended the abolition of the guardians and the Royal Commission on National Health Insurance had recommended the abolition of insurance committees. The insurance scheme should include a competent midwifery system and should be extended to apply to dependents. The Scottish Consultative Council (1920) favoured unification of the local authorities concerned with health and an adequate medical service for every member of the community. The Consultative Council of 1923 recognised the present overlapping and waste and the fact that many administrative units were too small to be efficient, and put forward one health authority for each area as the objective. "Regional administration" had been adopted for electricity and was desirable for many health problems—e.g., non-pulmonary tuberculosis, puerperal fever, ophthalmia neonatorum, and orthopædic schemes. The municipal and Poor-law beds in Glasgow, numbering some 5000, could be used to better advantage if they were under unified control. Again, the remedial measures for school-children which had reached a high level, should obviously be applied to pre-school children. The modern tendency to specialise and have separate clinics for tuberculosis, child welfare, venereal diseases, &c., all added to the complexity. Perhaps centres in whose work the general practitioner would take part would be the ultimate solution. The bringing in of the factory worker into a unified scheme was a difficulty. On the other hand, the

proposed new department for mental health was a mistake.

Prof. E. L. COLLIS (Cardiff) referred to the new Factory Bill and criticised the clause giving the Secretary of State power to transfer control of factories to county councils. The local health authorities could not deal with industrial health and diseases adequately. The factories must supply their own medical services (under supervision) and not have a medical service inflicted on them. He cited the growth of the factory medical service in the United States in support of his contentions.

Prof. F. E. WYNNE (Sheffield) was inclined to agree with Prof. Collis; he favoured the exclusion of factories and ports, but would include everything else under one local health administrative unit. The Commission of 1869 recommended one local and one central unit, but the Ministry had not accomplished the unification intended. School medical departments were still often separate in England. Infant and pre-school records were not passed on and school records were mainly pigeon-holed. There was much overlapping and waste. There should be one record, including the pre-school, school, and factory periods. With a unified medical service would come a better and more general training for the young medical officer.

Dr. J. H. MEIKLE (Edinburgh School Board) said the education and health services in Scotland were quite separate, though sometimes coördinated. The 1919 Memorandum of the Scottish Board of Education recognised the need for coöperation. In Edinburgh there was a happy alliance. Joint clinics had great advantages. He favoured coöperation rather than unification.

A communication from Prof. E. W. HOPE (Liverpool) was read, which referred to the many Government departments which dealt with public health and the "preposterous" proposal to have a separate department for port sanitary work. Dr. Hope went on to refer to the anomaly of the destitution authority dealing with vaccination, to the magnificent Poor-law hospitals, and to the many-sided administration of public health which had been built up in London. His ideal was one chief medical officer for each local health unit, including factories.

Dr. FREDERICK DITTMAR (Scottish Board of Health) regarded coördination as essential. Glasgow had Poor-law hospitals with staffs of consultants. The health authority should take over all treatment of disease. In Aberdeen the medical administration of the Poor-law hospitals had been taken over by the health authority; also the schools. In Stirlingshire the medical officer of health was the administrative head of all these services. Dr. Dittmar thought, however, that the industrial health problems of the factories were so distinctive that they should be dealt with by the factories themselves.

Dr. F. N. KAY MENZIES (London) described the apparent chaos of London's health government, which nevertheless produced good work. There was, however, much overlapping, unnecessary correspondence, friction, and variation in standards. Local conditions in the country varied very much, and the crux of the question was: What is to be the unit? For county boroughs the solution was easy. Each county, he thought, should prepare its unification scheme to suit local conditions and submit it to the Ministry.

Dr. W. F. DEARDEN (Manchester) put the point of view of a factory surgeon. He thought local health authorities should only deal with matters which made factories a nuisance to the surrounding community and that the factories should deal with their own industrial health problems. A committee of employers and employed with a Home Office representative discussed industrial dangers and drew up rules and regulations. No local authority could have on its service all the specialists needed for dealing with the various industries. The work of the certifying factory surgeons had changed and they now had to act as neutral officials in advising about regulations, and in investigating industrial poisoning effects and compensation cases.

Dr. MIDDLETON MARTIN (Gloucestershire) spoke in favour of central and local unification. The establishment of the Ministry of Health had not brought about any central unification. In Gloucestershire the medical officer of health was head and the pre-school records were passed on to the schools. Port sanitation was rather special, as regards unification proposals.

Dr. J. PARLANE KINLOCH (Aberdeen) said that in Aberdeen they were now considering the relation of the municipal and Poor-law hospitals (taken over by the municipality) to the voluntary hospitals and the university. He thought that there was nothing so special about factory medical inspection as to interfere with its being taken over by the local health authority. Orthopædic schemes, for example, were of a far more special nature. He believed, however, that sanitary inspectors needed a higher education to enable them to deal with the environmental hygiene of factories and that their association should take up this matter. The area of the local health unit needed to be sufficiently large.

Dr. DAVID MCKAIL (Glasgow) advocated the employment of part-time medical officers and thought it was essential that all medical officers should have at least three years of the rough-and-tumble of practice in order to get a true idea of home conditions.

Dr. HAROLD SCURFIELD (Folkestone) thought these talks did not advance matters much and that the various districts should make experiments in coöperation with the encouragement of the Ministry. He gave as examples the experiments that were being made in Gloucestershire, Essex, and Cardiff.

Dr. H. S. BEADLES (Romford) recommended the coöption of medical representatives on the health committees.

Dr. E. H. SNELL (Coventry) thought that just as one head was necessary for an army, one head was necessary for the local health unit.

Dr. W. A. LETHEM (Ministry of Health) recommended the Cardiff system as a means of providing a good all-round training for future medical officers of health.

Dr. MACGREGOR, in replying, said that the head clinical posts in each specialty should be better remunerated. He thought there was considerable scope for regional coöperation, approved Dr. Menzies's suggestion about county experiments in coöperation, emphasised the importance of continuity of records, and said that we wanted something more than interchange of information.

THURSDAY, JULY 21ST.

The subject under discussion at the second session was

THE NATION'S FOOD SUPPLY.

The Section was asked to consider the duties of the State in relation to the food supply, in so far as they were concerned with research, instruction of parents, maintenance of supplies, and cooking facilities.

Prof. EDWARD MELLANBY'S opening paper constituted a strong plea for the setting up by the Ministry of Health of a board of nutrition composed largely of experts actively engaged in nutritional research. This board would examine the results of research work conducted for the Medical Research Council, the Board of Agriculture, the Empire Marketing Board, and other bodies by study of the work and personal contact with the investigators; it would advise the Ministry about suitable lines of action, and it would initiate research on practical points to fill up gaps in our knowledge. The Ministry, acting on this board's recommendations, would control the feeding of public institutions and institutions in receipt of grants, publish authoritative statements for the guidance of the public, and set up a department for testing the value and vitamin-content of foods. As regards instruction of parents, the Ministry would see that all teaching organisations, including the press, had authoritative information supplied to them instead of the haphazard amateurish,

and often partisan, statements at present available. As regards maintenance of supplies, the Ministry would increase, for example, the facilities for obtaining desirable foods such as "the protective foods," and discourage the production or importation of less desirable foods, according to the needs of the moment. Fish, for example, was an excellent food, the consumption of which was being reduced at present by faulty methods of distribution and sale. The modern practice of buying cooked foods would necessitate attention to cooking facilities.

In leading up to his main proposal, Prof. Mellanby outlined the facts about the fundamental importance of correct feeding in the promotion of health and resistance to disease as shown by the research of the last few years. Knowledge of dietetics was now much ahead of its application, and the machinery for its dissemination was inadequate. He paid tribute to the Government departments and the Medical Research Council for the good work already done, but much more could be done by the better application of present knowledge. Research was carried out in water-tight departments and there was much overlapping; coördination was urgently needed. The Medical Research Council was hampered by lack of funds. The Empire Marketing Board would provide funds. More research workers were needed. Administrators had not time to keep in touch with the work and needed first-hand knowledge. The claims made by the manufacturers of various foods ought to be controlled. Sound advice from an authoritative source was urgently needed. The State should take a stronger line in promoting and coördinating research, in informing the public, and in controlling food supplies.

Dr. T. EUSTACE HILL (County Durham) considered Prof. Mellanby's address and proposals not a counsel of perfection but eminently reasonable, and he favoured the establishment of a board of nutrition. He thought the personal touch was needed to produce a change in dietetic habits. The health visitor had great opportunities in the home but required better training in the subject. Talks at the centres, too, were better than set lectures. The cheapening of foods and the improvement of facilities for distribution were urgent matters. In one district they had gluts of fish, fruit, and vegetables, which were allowed to rot and in another district, not far away, the same articles were sold at exorbitant prices. Allotments should be encouraged and the holders should be advised about the best vegetables to grow, from the point of view of food values. Coöperative societies might do much to facilitate transport of cheap protective foods. Communal kitchens would be a boon to poor industrial districts. The charges for cooked foods were much too high.

Dr. J. PARLANE KINLOCH took up the cudgels for the national cereal of Scotland and went on to show the inadequacy of our milk consumption. He gave a list of the milk consumed per head in various countries, which showed the United Kingdom at the bottom with a consumption only one-half that of the next lowest. For the immediate present the health visitors could do most to educate in the homes, but when the teachers were better educated in food questions, he hoped for greater results from the schools. He approved of communal laundries, which would give the housewife more time for cooking.

Dr. GERALD LEIGHTON (Scottish Board of Health) declared himself an optimist about the milk-supply and considered it unwise to legislate in advance of public opinion.

Sir GEORGE NEWMAN (Ministry of Health) gave a brief sketch of recent legislation to illustrate the great interest which the Government took in food questions. Diets were improving and the public was interested, as the many articles in the press showed. The knowledge of nutrition had not yet permeated the medical profession. When the doctors understood nutrition, the people would learn. Prof. Mellanby's proposition would receive his most careful consideration.

Dr. MACGREGOR referred to the diversity of opinion among doctors on food questions. He thought the recent experience with the unemployed in Glasgow had shown that the usually accepted minimum of calories needed was an overestimate. He also defended oatmeal as an article of diet.

Lack of time prevented a general discussion and, possibly owing to the wide scope of the title, Prof. Mellanby's main proposal—the establishment of a board of nutrition—received scant consideration.

Pulmonary Asbestosis.

This new disease was discussed by Dr. W. E. COOKE (Wigan), Sir THOMAS OLIVER, and Prof. STUART MCDONALD (Newcastle-on-Tyne) from the clinical, pathological, and preventive points of view.

Sir THOMAS OLIVER showed that the crushing of the rock, which may contain 50 to 60 per cent. of silica, was done in the country (e.g., Canada) where it was mined or quarried. British workers were therefore less exposed to the harmful influence of the dust. Dr. Cooke had shown in 1924 that in the manufacture of cloth-like structures from asbestos dust was produced, especially in the carding department. A fatal case of asbestosis had been described by Dr. Montague Murray in 1900 in the *Charing Cross Hospital Gazette*. He (Sir Thomas Oliver) had seen cases in Leeds and had visited asbestos factories in America. Asbestos manufacture had been carried on in this country for 30 years and was largely a familial occupation. The rooms in which carding and spinning were done must be well ventilated and kept clear of dust and floating fibre. In a British factory the dustiest process was the hand-beating of the finished mattresses used for covering and protecting the internal machinery of automobiles, and during this process the men should wear masks and there should be open windows at one end and a strong down-draught at the other end of the shed used, which should be separate from the rest of the factory.

Asbestosis resembled silicosis in producing marked shortness of breath, deficient respiratory capacity, and physical debility, followed only at a late stage by the addition of tuberculous infection. He did not doubt that there had already been several deaths in British factories from asbestosis which had been unrecognised and certified as pulmonary tuberculosis. He described the histories of two women (one, 48 years old, who had worked 30 years, the other, 39 years old, who had worked 18 years), neither of whom had tubercle bacilli in their sputum. Both gave up work on account of loss of weight, increasing debility, shortness of breath, and cough. Asbestos would be put to many uses. It was indestructible by fire or acids, and was used for making tiles, ceilings, and cord. The industry would grow and preventive measures must be adopted at once.

Prof. MCDONALD then described the curious foreign bodies found in the lungs post mortem, in addition to the fibres and particles of silica. They resembled minute crustaceans, but investigation appeared to indicate they were neither animal nor vegetable and they might be silica in a colloidal form, from the hydrolysis of the asbestos fibres owing to long-continued retention in a moist, warm situation.

SECTION OF FORENSIC MEDICINE.

THURSDAY, JULY 21ST.

Prof. HARVEY LITTLEJOHN was to have presided over the sessions of this Section, but was prevented from doing so by the illness which led to his death on August 16th. At the first session the chair was taken by Earl RUSSELL and the subject of discussion was

ALCOHOL AND THE MOTORIST.

Dr. GODFREY CARTER (Sheffield) said that Dr. H. W. Southgate and himself had found that alcohol could be detected in the urine in quantities varying with the amount taken and the time that had since

elapsed.[1] Later, E. Mellanby and H. W. Southgate had established a ratio between the alcohol in the blood and in the urine. It had been found that this ratio stood at the figures 1 to 1·34, showing that the renal epithelium had a selective action for alcohol in secretion. A concentration of 300 c.mm. per 100 c.cm. of urine, at the point of maximal concentration, suggested definite intoxication. When a sample of urine had been obtained it should be quickly bottled to prevent alcoholic evaporation, and glycosuria must be excluded in order to prove that no alcoholic fermentation had taken place.

Dr. EMIL BOGEN (California, U.S.A.) described a method of determining the concentration of alcohol in the breath. The patient was asked to blow up a football having a capacity of about two litres. The air while still warm was bubbled at a moderate rate through 5 c.cm. of a hot solution of 33 per cent. N/15 potassium dichromate in 50 per cent. sulphuric acid. The colour changed from reddish yellow to greenish blue, and was then compared with a series of standards previously made up by the addition of known amounts of alcohol (1, 2, 3, 4, and 5 mg.). The entire test took only two to five minutes. This method, together with examination of the urine, had been used in an investigation at the Cincinnati General Hospital of 500 persons suspected of drunkenness. This investigation had well shown the relationship of the concentration of alcohol in the urine to the degree of intoxication. None of the patients with less than 1 mg. of alcohol per c.cm. of urine had been reported as intoxicated, whilst a little more than half of those having from 1 to 2 mg. per c.cm. were so diagnosed clinically. Three-quarters of those having from 2 to 4 mg., and all of those having 4 mg. or more per c.cm. of urine, had been regarded as drunk. The diagnoses had been very conservative since in these cases the physician was called into court to sustain his impressions, and unmistakable clinical evidence was insisted upon. Even more striking was the relationship between the concentration of alcohol in the urine and the different symptoms usually considered indicative of acute alcoholism. The odour of alcohol in the breath was present in less than half of those showing under 1 mg. per c.cm. of urine, in more than three-quarters of those showing from 1 to 3 mg., and in nearly every instance where the urine contained 3 mg. or more of alcohol per c.cm. On the other hand, the dilated pupils and flushed face, so frequently relied upon as evidence, were found in less than one-third of the cases and were particularly noticed in the moderate groups, being replaced by constricted pupils and pallor in a high proportion of patients admitted in coma or stupor. Inability to stand straight without swaying was noted in less than 20 per cent. of patients showing under 2 mg. of alcohol in the urine, but in more than 80 per cent. of the others who were able to stand at all. In no case with 3 mg. or more was the subject able to stand without swaying. Marked incoördination of the hands was most frequently found in those who had more than 2 mg. per c.cm. Disturbance of behaviour, on the other hand, including garrulousness, volubility, euphoria, boisterousness or pugnacity, were more pronounced in those showing from 2 to 4 mg., for above that they tended to lapse into sluggishness, stupor, or coma.

The estimation of alcohol in the breath, said Dr. Bogen, was the quickest and easiest test yet suggested. As soon as the disturbing factor of the alcoholic liquor still in the mouth and lip was removed (about ten minutes) the concentration of alcohol in the breath approached a fairly constant relationship to that in the blood, since alcohol passed through the lungs very easily. Under 15 per cent. of patients having less than 1 mg. of alcohol in the sample of breath taken were found to be intoxicated, as compared with 70 per cent. of those having from 1 to 3 mg. and 100 per cent. of those having 3 mg. or more. The study of these results and those of other observers indicated that estimation of alcoholic concentration in the urine, breath, and tissues, was the most important single factor in arriving at a correct conclusion as to the degree of a patient's intoxication.

Prof. J. T. J. MORRISON (Birmingham) thought that the actual tests of urine and breath would not be used generally, because it was difficult to get satisfactory specimens and prompt analysis. The fact that renal conditions and disease in general might affect these excretions was not to be overlooked, and the wishes of the accused person had to be considered before the tests were made. The effects arising from the consumption of the same quantity and concentration of alcohol in different persons and also in the same person might vary greatly—e.g., with the amount of food in the stomach and the dilution and the rate of consumption of the alcohol. Many systems of the body were affected by drink, and there was no single effect that might not be present in trauma or disease. The crucial point was, he thought, how much disturbance there was, and no single test would suffice. All possible signs and symptoms must be taken into account.

Prof. ANDREW ALLISON (Glasgow) said that the object of a medical witness was not to give his own impression of a drunken man, but to present to the court a picture of the case as a whole when first seen. The object of the judge was to ascertain as to whether the defendant's efficiency had been so diminished as to render him culpable. Dilated pupils and infused conjunctivæ were inadequate tests for drunkenness. If a prisoner denied drunkenness he should be put in a cell; if he fell asleep within a quarter of an hour he was probably drunk and not suffering from nervousness or shock. Prof. Allison insisted on the necessity of gaining the prisoner's assent before examination, otherwise he might give evidence against himself. In cases of homicide the accused must be warned and the object of such examinations must be explained to him. Also it was wise to consult an independent doctor.

Lord RUSSELL said that if a man was in custody he might be examined without necessarily being warned. The accused should always have the option of calling in his own doctor.

Prof. J. E. W. MACFALL (Liverpool) emphasised the necessity for a lengthy exhaustive examination in every case of suspected drunkenness and for concrete facts rather than ideas. It was important to ascertain when the prisoner thought he had been arrested—i.e., to get his idea of the interval between the time of his arrest and the time of the present examination. It was important that the tests should bear a relation to the actual work which the accused was carrying on at the time. The doctor might drive in a car, for instance, with the drunken man.

In the course of his reply Dr. CARTER said that a man was not fit to be in charge of a car if there were more than 260 mg. of alcohol in 100 c.cm of his urine.

At the second session of the Section Sir WALTER SCHRÖDER (London) took the chair, and the subject of discussion was

The Teaching of Forensic Medicine.

Prof. JOHN GLAISTER (Edinburgh) said that there was a great difference in value between the lectures given by a teacher in constant and immediate touch with the practical side of the subject and the lectures of one whose knowledge was chiefly theoretical. The teacher's field of work should provide material for instruction, such as photographs of cases, whilst the formation of a class museum of illustrative specimens was a valuable adjunct. The visit of a student to a Court of Law during a trial was worth much, as it enabled him to see the surroundings and to hear witnesses examined and cross-examined. Such opportunities commonly occurred during the progress of a teaching term and the courts were willing to give students facilities for being present.

Prof. MACFALL agreed that the teaching of forensic medicine must be correlated with actual cases. The

[1] Brit. Med. Jour., 1926, i., 463; see THE LANCET, 1926, i., 207.

teacher ought to have the confidence of the local coroner and for his expert knowledge to be available at any time. It was difficult to see at what period of the student's career examinations in forensic medicine should take place. A good knowledge of medicine was necessary as a basis, and therefore probably the best time was either just before or after the final examination.

Prof. SYDNEY SMITH (Cairo) said that in forensic medicine the training of the student was less important than the training of the medical practitioner. It was necessary to have a definite course in the subject analogous to that for the Diploma in Public Health. Such work must be done regularly, and therefore it was better to have centres set aside for the work, equipped with the necessary laboratory material. In Egypt every case of violence and the like required complete investigation. In this country this investigation was not done, often because of the question of fees. If there were centres employing full-time staffs this would not arise in the same way. In Egypt every doctor carried a sterile bottle and in cases of poisoning specimens were immediately sent to the laboratories. This system had greatly reduced expenditure.

Prof. ALLISON thought it desirable to have teaching centres well equipped, and if possible to send all cases of poisoning, for instance, to such institutions. There should be more opportunities for discussing the subject, such as those offered by the Medico-Legal Society in London. No such society existed at present in Scotland.

Dr. J. A. KERR (Edinburgh) said that just as a diploma was required for service in the public health department, so there ought to be a similar qualification distinguishing experts in forensic medicine.

Prof. MORRISON pointed out that coroners were handicapped by the town councils in their efforts to emancipate the teaching of forensic medicine. In fatal cases of irritant and corrosive poisons the general practitioner sent quite inadequate specimens of the organs and fluids to be examined. It was deplorable that the teaching of this subject should have been pushed so far into the background, but unless more interest and sympathy was taken by the authorities it was impossible to progress.

Dr. HICKS said that there was no definite procedure laid down as to the proper course to take in poison cases. Any practitioner might be in a position which required such knowledge. He had had painful experience of the difficulties and delay in getting specimens examined and of the decisions as to procedure in these medico-legal cases.

Lord RUSSELL was glad that the general opinion was that much of this work should be post-graduate. The medical curriculum was already overloaded.

Sir WALTER SCHRÖDER thought that something more should be done to bring about a system of forensic medicine which could be brought to bear on general practitioners, and especially those who had to give medical evidence; therefore it was necessary for the teaching to be real and practical. It seemed apparent that forensic medicine should be in part a post-graduate study, but exactly when the instruction should be given, and who should give it, was a problem yet to be solved. He had supported the suggestion that there should be a central post-mortem mortuary in London and the principle involved ought to be extended to the teaching of forensic medicine generally. The question as to who should be entitled to make post-mortem examinations raised difficulties, but the appropriation of the work to a police divisional surgeon might be the best solution, though it would be necessary for him to be in close touch with pathological work. It was a matter for the British Medical Association to decide whether a post-graduate course in forensic medicine should be introduced with a special diploma as a necessary qualification of a police surgeon.

Reviews and Notices of Books.

COMPARATIVE PHYSIOLOGY OF THE HEART.

By A. J. CLARK, *M.C.*, M.D., Professor of Materia Medica in the University of Edinburgh. Cambridge University Press. 1927. Pp. 157. 8*s.* 6*d.*

IN this the first of the series of Cambridge Monographs on Comparative Physiology to be edited by Prof. Joseph Barcroft and Mr. J. T. Saunders, Prof. A. J. Clark has provided a synopsis of the work of different investigators, which will earn for him the gratitude of many who cannot strictly claim the right to call themselves physiologists.

The opening chapters are devoted to the invertebrate heart and to the consideration of certain physiological properties of cardiac muscle both in cold and in warm-blooded vertebrates. They form a summary of the present state of our knowledge, and are necessarily less absorbing than those later chapters in which the author deals in a more discursive manner with general problems, such as the relation of body-weight to heart-weight, to circulation volume, and to the work of the heart in birds and mammals. He shows that the heart-rate in different species tends to vary with the metabolic rate, and since in the larger animals metabolism is much slower than in the smaller ones, the demand of the tissues for oxygen can be met by a slower heart-rate. Prof. Clark points out, however, that this is only true within certain limits; 1000 and 40 beats per minute appear to be the extremes beyond which it is uneconomical to go. Consequently the largest living mammal, the elephant, has to be content with a heart-rate which is no slower than that of its less bulky contemporaries. Considering the valuable services which the tortoise has rendered to cardiac physiology, it seems almost a pity that in the present version of the story the hare should be set to race the rabbit instead of his traditional opponent. The heart-weight in the hare is three times, and the resting pulse-rate is one-third of that in the rabbit. In case of emergency the maximal rates attainable in the two animals are similar; the reserve of the hare therefore compares very favourably with that of his lower-powered connexion.

As a book of reference this will be of real value to those who wish to study more deeply the many fascinating aspects of the subject on which Prof. Clark touches, and there can be no doubt that the author will succeed in his object of stimulating research in comparative physiology.

PYELOSCOPY.

La Pyeloscopie. By F. LEGUEU, Professor of the Urological Clinic and Surgeon to the Necker Hospital, Member of the Académie de Médecine; BERNARD FEY, Head of the Urological Clinic of the Faculté de Médecine; and PIERRE TRUCHOT, Head of the Radiological Department of the Clinic at the Necker Hospital. Paris: Norbert Maloine. 1927. Pp. 114.

Prof. Legueu and his collaborators are to be congratulated in having achieved a fresh advance in the methods of urological diagnosis. These workers, feeling that pyelography was not the last word in the radiological examination of the hollow part of the urinary tract, set themselves to improve upon it, and, during the past four years, they have performed what they term pyeloscopy in a thousand cases at the Necker Hospital. Pyeloscopy, as they define it, is pyelography performed by direct vision with the aid of the X ray screen, and is superior to a simple pyelogram in the same way as screening of the stomach after a barium feed is superior to mere photography on a single plate. It demonstrates the motility and tone of the organs as well as their outline, and brings our knowledge of the working of the excretory apparatus of the kidneys into line with

that of the other hollow organs of the body. The outcome is the book under review.

After a chapter on technique, in which the authors claim that the investigation should be a painless one, they proceed to give a full account of their observations of the normal renal pelvis when filled with a suitable opaque solution. Their description of its behaviour, the method of evacuation, and the action of its sphincters makes fascinating reading, and is freely illustrated by plates taken at different moments during the course of the examination. This is followed by a study of the modifications induced by infective and other pathological changes which may cause delay, hyperactivity, partial or complete retention, or retention with spasm. Finally, the experience thus gained has been brought to bear on a series of cases of well-defined diseases, and with profit. In certain of the conditions examined the writers admit that pyeloscopy has not helped them, but in others, notably early hydronephrosis, movable kidney and the primarily infective lesions, it has proved most valuable in showing just where the fault lay and thereby indicating the most hopeful line of treatment.

This is good work and the account of it is well given. If any criticism of the book can be made it is that the translations of notes in several languages accompanying the plates do not come up to the standard of the rest of the production.

BLOOD CHEMISTRY.

The Clinical Interpretation of Blood Chemistry. By ROBERT A. KILDUFFE, M.D., Director of Laboratories, Atlantic City Hospital. Philadelphia: Lea and Ferbiger. 1927. Pp. 186. $ 2.50.

THIS little book sets out to aid the practitioner by telling him what he can and cannot deduce from various chemical analyses of the blood. The aim is admirable, and many of the sections well done. Those dealing with nitrogenous constituents are especially good; blood-sugar is also fully dismissed, special sections being devoted to the interpretation of glucose tolerance tests. Chapter XII., on blood chlorides, seems either too brief or too long. The truth is that nothing definite can be learnt from figures about chlorides at present, and it would have been wise to tell the reader so frankly. The chapters dealing with dietetic management of metabolic conditions in the treatment of diabetes appear irrelevant, especially when the book omits all reference to such important and relevant subjects as the significance of bilirubin and its derivatives in the blood. There are, however, few serious omissions, and as an introduction to a subject of growing importance to practitioners the book has real merit.

THE GALL-BLADDER.

La Vésicule Biliaire. By M. CHIRAY, Professor agrégé à la Faculté de Médecine de Paris; and I. PAVEL, Assistant Universitaire à la Faculté de Médecine de Bucarest. Paris: Masson et Cie. 1927. Pp. 568. Fr. 70.

THIS volume has the character of those classical works which have made French medical literature famous. Clearly and logically written, it deals with its subject matter in exhaustive, but never tiresome fashion. It is up to date and well documented, each chapter being supplied with a selected bibliography, and we note with pleasure that this list of references is, broadly, international, and thus is free from one of the grave faults of many modern works published in Paris. Cholecystography is fully described, and a series of good reproductions illustrate the radiographic appearances of the diseased gall-bladder. The main criticism to be made of an otherwise excellent volume is that the authors appear to consider "non-surgical drainage" as the one alternative to operative treatment. They advocate this method even in addition to surgery, a prospect which to many will appear superfluous and alarming.

ALLERGY AND ANAPHYLAXIS.

Allergy, Asthma, Hay Fever, Urticaria and Allied Manifestations of Reaction. Second edition. By WILLIAM W. DUKE, Ph.B., M.D., Kansas City, Missouri. London: Henry Kimpton. 1927. Pp. 344. 25*s*.

THERE is in this book an excellent account of the theory of allergy and experimental anaphylaxis, which is dealt with on historical lines. The author disclaims any first-hand knowledge of this part of the subject; but he has made a really useful compilation. He gives a full description of plants that produce pollen, with pictures of those particularly found round Kansas, Missouri, and microphotographs of the various pollens. Other causes of allergy are considered, and also the causes contributory to the reaction. Among these is to be noted the statement that "many asthma cases and many patients with nasal reaction have been made infinitely worse by radical, and even by minor operations in the nose, even operations carried out intelligently by the most careful surgeons." The symptoms of allergy are very fully dealt with. The author describes some convincing cases which show that Ménière's disease, renal colic, and arthritis are occasionally due to allergy. Striking pictures of the various cutaneous reactions are included, and the methods of carrying out the cutaneous and intracutaneous methods of testing are clearly set out. It would have been useful to readers if the process of preparing extracts from various substances, such as dust, had been described; but full references are given. To this second edition the author has added a description of the local passive transfer of hypersensitiveness, and of local desensitisation by treatment of local sensitised areas with the related irritating agent. Unfortunately the description of these complex methods is too brief to be really intelligible. The treatment by ephedrine is also described.

In Part II. a much needed summary of the reactions caused specifically by reagents such as heat, light, cold, and chemical irritants is given. There is an excellent bibliography. The author describes vesicles on the skin produced by protein testing as "hives." It would be advisable in a future edition to add a definition of this uncommon expression.

CAUSE AND CURE OF SPEECH DISORDERS.

By JAMES SONNETT GREENE, M.D., Director, and EMILIE J. WELLS, B.A., Supervisor, of the New York National Hospital for Speech Disorders. New York: The Macmillan Company. 1927. Pp. 458. 20*s*.

THIS book is divided into three main parts dealing respectively with stuttering, stammering, and vocal defects. A variety of subjects are included in the last section, such as intensity, pitch, and intonation, and the attention given to pronunciation should be useful to many people who do not suffer from speech-defects as ordinarily understood. A sympathetic account of the emotional make-up of the stutterer takes up a large part of the book, but little is said about the details of his treatment. The section on stammering is less satisfactory; indeed, the authors do not succeed in giving a clear definition of what they include in this term. They appear to mean any defective enunciation due to physical causes, and they give a list of such causes which includes idiocy, progressive muscular atrophy, bulbar paralysis, Bell's palsy, insanity, cleft palate, and acquired malformations of the mouth, teeth, and larynx. It is, of course, impossible to formulate methods of treatment for speech-defects due to many of these diseases, and in some treatment of the speech would be impossible or undesirable. It would have been better if details had been given as to how the admirable series of exercises described should be applied to special forms of defect, such as cleft palate after operation.

IMMUNITY IN INVERTEBRATES.

L'infection microbienne et l'immunité chez la mite des abeilles Galleria mellonella. By S. MÉTALNIKOV. Paris: Masson et Cie. 1927. With 22 text figures. Pp. 140. Fr.18.

Galleria is a moth whose larva feeds on the wax of the comb in bees' nests; it can be easily reared in the laboratory and evidently forms a convenient object for a variety of experiments in a field which so greatly needs further inquiry—immunity in invertebrates. M. Métalnikov describes some interesting observations on the peculiar nutrition of the animal, but more notice will probably be taken of his experiments on infection and resistance. The animal is highly susceptible to some bacteria (e.g., *B. coli* and *B. pyocyaneus*), moderately susceptible to others (e.g., typhoid, staphylococci), and immune to a number of human pathogens (e.g., tubercle, diphtheria, tetanus). It can be protected by killed vaccines. Immunity, as we know it, is mainly a late evolutionary development in warm-blooded animals, especially in respect of the antigen-antibody reaction. In lower organisms mass immunity by selection of resistant races, and individual immunity by phagocytosis, are more prominent. And it is of the greatest interest to work out the beginnings of the phenomena which we see in mammals and birds: similar work on other lower animals is much needed if any real science of comparative pathology is to be achieved.

SOME FAMOUS MEDICAL TRIALS.

By LEONARD A. PARRY, M.D., F.R.C.S. London: J. and A. Churchill. 1927. Pp. 326. 10*s*. 6*d*.

IF all the crimes in which medical men have been implicated were to be recorded, we fear that a library rather than a volume would be required. At any rate, this would be so if all ages and all countries were drawn upon for the purpose. In the volume before us Dr. Parry has not confined himself to our epoch or to any one country, but has made wise selections from international records. He has compiled an interesting book, in which will be found murders, with doctors as villains and as victims, trials of physicians and surgeons for treason, theft and forgery, and stories of quackery ending in the law courts. Dr. Parry writes well, and spares us the tiresome details which rob so many modern records of all interest.

HANDBOOK OF SKIN AND VENEREAL DISEASES.

Praktikum der Haut- und Geschlechtskrankheiten. Fifth edition. By Dr. MORITZ OPPENHEIM, Professor of Dermatology and Syphilis in the University, Vienna. Leipzig and Vienna: F. Deuticke. 1927. With 55 illustrations. Pp. 284. M.12.

THE rapid progress of our knowledge in the branches of medicine with which this handbook deals has necessitated the appearance of a fifth edition after only three years. This is the modest remark of the author, who in his latest preface instances particularly the new fields opened up by helio- and radio-therapy, the advances in the diagnosis of tuberculous skin affections, and the modern developments in connexion with the examination of the cerebro-spinal fluid in all stages of syphilis. He admits the desirability of an ætiological classification, but thinks the time is not yet ripe for the purpose. The book therefore retains its original arrangement, and departs but little from the classical tenets of the Hebra school. It makes no appeal on the score of its illustrations, which are limited to half-tone reproductions of typical microscopic sections, and woodcuts of apparatus used in the treatment of gonorrhœa. The inclusion of this large subject in the 284 pages of text has resulted in a curtailment of all the dermatological descriptions, and it seems unlikely that without a thorough clinical training either the student or the practitioner could derive much profit from a study of the contents. We imagine that Prof. Oppenheim had his own well-instructed students in mind when he wrote the book, and of these there must be many both on the continent and in this country who have a lively recollection of his vivid demonstrations and lectures. To such and other graduates in the Hebra school this work is confidently recommended. The descriptions are accurate and concise, while the therapeutic sections are entirely up to date and reliable. These points are particularly well brought out in the treatment of syphilis, though it is doubtful if all authorities would agree that bismuth is more toxic than mercury.

SUNSHINE AND HEALTH.

By RONALD CAMPBELL MACFIE, M.A., M.B., C.M., LL.D. London: Williams and Norgate, Ltd. 1927. Pp. 256. 2*s*.

IN this little book there is really not much about sunshine in its relation to health. What there is strikes us as being so good that we regret that the author should have taken up nearly two-thirds of the book with a popularly written account of the physics of radiation, combined with dissertations of a highly speculative nature upon the why and wherefore of this universe. On p. 62, for example, he says: "Let us turn for a moment to the philosophy and religion of radiation," which subject is hardly relevant to a discussion of the effects of sunlight upon health. Dr. MacFie's wide reading, of which his book supplies ample evidence, should have prevented him from referring to the electron as flashing along at the rate of 1,000,000 miles a second, but mistakes of this sort are very few. We hope that the balance of the subject will be restored in a future edition.

EXAMINATION OF CHILDREN.

Clinical and Laboratory Methods. Second edition. By ABRAHAM LEVINSON, M.D., Northwestern University, Chicago. London: Henry Kimpton. 1927. Pp. 192. 15*s*.

THE first edition of this book was founded on a course of lectures, delivered by Dr. Levinson to students at Chicago University, on the interpretation of clinical and laboratory tests in pediatric practice. The success of the former edition has led to the preparation of a second, in which various additions have been made to the account of physical examination and the descriptions of laboratory tests. Among the latter are included many which have no special application to pediatrics, as, for instance, Lange's gold test. The text is accompanied by numerous illustrations both of physical abnormalities and of apparatus, and the book fulfils its objects.

DEVELOPMENT OF THE HUMAN FŒTUS.

Die Entwicklung des Menschen vor der Geburt. By Prof. Dr. Med. IVAR BROMAN, of Lund University. Munchen: J. F. Bergmann. 1927. Pp. 357. M. 24.

THIS book, by the well-known director of the Anatomical Institute at Lund, is in large part a record of his own work in the domain of human embryology. It is thus an authoritative guide for those who wish to make acquaintance with the subject, although in one brief volume only short accounts of each system can be given. It is an excellent descriptive presentment of what one may term the accepted German academic views. These differ in certain particulars from those perhaps generally held in England, but the differences are not very important. The text has not escaped from those errors which seem to persist in embryological works, more especially in the figures. For instance, the illustrations in the section dealing with development of the heart in this book are borrowed. The inaccuracies of the figures of G. Born are reproduced, although their more manifest absurdities have been remedied by omission of the labels. A most misleading figure from Kollmann follows: leaving on one side the obviously ridiculous

description (correctly copied from the hand atlas) of the parent specimen as one of 7·5 mm., the conditions shown in the drawing are so erroneous in many small details that it cannot fail to give a false notion to the reader who has no practical acquaintance with the subject. The figures in this section do not exemplify the text, which is correct, if brief. It is to be regretted that these few illustrations mar the series, for most of the figures in this book are excellent, and often beautiful. Moreover, many conditions are illustrated which are not, we believe, so treated in any English text-book. The descriptive portion of the work is concise, clear, and good, and the whole production leaves a very pleasant impression upon the reader.

LES MICROBES.

By P. G. CHARPENTIER, Professeur à l'École de Médecine de Dijon, Directeur de l'Institut d'Hygiène et de Bactériologie. Paris: Les Editions Rieder. 1927. Pp. 77. Fr.16.50.

IT is, we think, a fact that the French lay public are on the whole better informed on medical matters and human physiology than our own. They are more given to the social discussion of such subjects, they learn more in their education at institutions, and they do not regard conversation about their "in'ards" as carrying a vague suggestion of indecency. Here we have a popular but thoroughly scientific account of bacteriology, directed towards satisfying the layman's natural curiosity. It is a pleasant book to read, agreeably written, and the numerous heliotype illustrations, from photographs of M. Pierre Jeantet of the Pasteur Institute, are amongst the best examples of microphotography and its reproduction which we have ever seen.

JOURNALS.

ST. BARTHOLOMEW'S HOSPITAL REPORTS. Vol. LX. London: John Murray. 1927. Pp. 203. 21*s*.—The sixtieth volume of the St. Bartholomew's Hospital Reports is chiefly remarkable for the comprehensive account which it gives of the work being carried out by different members of the staff on the uses of deep X rays and radium. This account is of the nature of a symposium, seven workers summarising the results obtained in their own particular branch of the research. Sir Thomas Horder contributes an introduction, in which he states that he "knows no instance of a single centre producing in so short a time a mass of work of equal value to this." In the first article Dr. Walter M. Levitt traces the history of deep X ray therapy and shows how it has progressed from empiricism towards becoming an exact process founded on scientific data. He does not describe the results which he has actually obtained, but it may be inferred that they give grounds for satisfaction. Dr. Hopwood, professor of physics at the hospital, gives a compressed but excellent account of the physical properties of radium. Pure laboratory investigation is represented by Dr. R. G. Canti, who has worked for some years, in conjunction with the late T. S. P. Strangeways, at the effect of radium upon living tissue cultures. The object of the work has been to discover "the most efficient way of bringing about a lethal action in malignant growths." The problem is one of great technical difficulty, and no final results can be recorded, but it is evident that Dr. Canti has advanced some way.

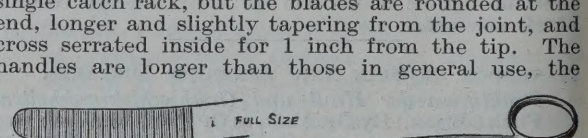
Dr. N. S. Finzi introduces the clinical side of the work with an account of the therapeutic uses of the γ rays of radium, including their observed effects on the different tissues of the body, both normal and abnormal. In his account of the results of treatment hitherto obtained he tries to show that the time has arrived when the practice of treating only inoperable cases of carcinomatous growths should give way to the inclusion of many operable growths. This attitude may be scrutinised in the light of the next three articles by Mr. Geoffrey Keynes, Mr. Malcolm Donaldson, and Mr. Douglas Harmer on the treatment respectively of carcinoma of the breast, cervix, and larynx and tongue. Mr. Keynes describes the results which he had obtained up to the end of the year 1926. Although his statements are guarded, it is clear that a very remarkable degree of success has been obtained. In 9 patients out of 13 with primary carcinoma of the breast the results have been "uniformly good," and the treatment has already been extended to patients with operable growths. Mr. Donaldson has treated carcinoma of the cervix in a much larger number of patients. He claims that radium therapy, as a palliative treatment for inoperable growths, has far greater value than any other method yet devised. Of 20 patients with operable growths, 18 are still alive up to 33 months after treatment. Further time must elapse before results can be assessed. Mr. Harmer opens his article with the statement that the time has arrived when the medical profession must "reconsider the whole question of radium treatment of malignant growths in the upper air passages." His results show that intrinsic carcinoma of the larynx is very susceptible to radium, and that in carcinoma of the tongue also a high percentage of cures can be obtained. They certainly give support to Dr. Finzi's contention as to the treatment of operable growths, and to Sir Thomas Horder's claim that every individual case of carcinoma in these situations should be considered as potential for radio-active treatment *from the first*.

It will be seen that all these clinical articles are interim reports, but they hold great promise for the future. The reports appear to be intended only for those old students of the hospital whose names appear in the list of subscribers. We wish that this volume could have a wide circulation, which its cost (a guinea for a slim volume with few illustrations) may prevent.

New Inventions.

IMPROVED BOZEMANN'S UTERINE FORCEPS.

THIS is a very convenient instrument for packing, or for making applications to the uterus, cervix, or vagina, or for introducing a drainage-tube. The improved forceps have the usual double curve and single catch rack, but the blades are rounded at the end, longer and slightly tapering from the joint, and cross serrated inside for 1 inch from the tip. The handles are longer than those in general use, the



entire instrument is stouter and stronger in construction, and as it is made from stainless steel it is easy to cleanse and sterilise, and is very durable. The round end, which is the size of a No. 5 uterine dilator, greatly minimises risk of perforating the uterus or vagina; the taper admits of its use to some extent as a dilator; its cross serrations provide a ready grip for introducing or removing packing or drainage-tubing, or for holding a pledget of wool when making an application; the greater length facilitates packing a large uterus, and allows the hand to be kept out of the way; the stoutness of the forceps permits twisting when swabbing, painting, or cleansing the cervix. The instrument is useful in conjunction with a Sims's or bivalve speculum, a vulsellum, a gauze roll or ribbon impregnated or not as required, when hæmorrhage calls for quick and firm packing, also for painting or packing the uterus after curetting.

Messrs. Allen and Hanburys, Ltd., 48, Wigmore-street, W., are the manufacturers.

J. LYLE CAMERON, M.D. Manitoba,
F.R.C.S. Eng., F.A.C.S.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 24, 1927.

CHANGE OF DOCTOR IN INSURANCE PRACTICE.

THE principle of free choice of doctor is so well accepted in this country that it is regarded as one of the fundamental bases of medical practice, and no doubt it has been a large factor in producing that happy and confidential relation between doctor and patient which is the envy of our continental friends and the despair of those who would introduce a statutory medical service. Nowhere than in the insurance scheme is the principle more firmly established or its carrying out more simple. Persons entitled to medical benefit in England and Wales, amounting to rather more than one-third of the total population, have 14,432 insurance practitioners to choose from. The number who contract out of the scheme to make their own arrangements is trifling, the number of complaints as to the service rendered is a small and diminishing quantity from year to year, and, as the Chief Medical Officer of the Ministry of Health noted in his recent report, the relation is such that the insured person is learning to consult his medical adviser earlier than was formerly the case, owing to the spread of the knowledge of preventive medicine. But free choice has its shady side in insurance practice; and especially during periods of unemployment due to industrial disputes a rigid adherence to the principle may be used by a disgruntled insured person to bring undue pressure upon the practitioner to obtain for him relief to which he is not entitled in equity or by statute. In industrial areas it is well known that the insured person can and does exercise pressure by threatening to transfer, and it has been stated on good authority that for a practitioner to give a certificate of fitness for work is, in some of these districts, a certain prelude to the receipt of notice that the insured person has removed his name from the practitioner's list. There is in such areas a plentiful supply of doctors to select from, competition is keen, and a new man coming in is tempted to go easy with his patients in order to secure their patronage and to build up a list at the expense of his colleagues. It had long been foreseen that some change in procedure was desirable, and certain alterations are to come into force on Oct. 1st. These new regulations are summarised in a notice circulated by the Ministry of Health to clerks of Insurance Committees, which is printed on page 678.

From a study of these regulations it is at once evident that the right of the insured person to choose another practitioner, even when he is already on the list of a doctor practising in his neighbourhood, is not seriously affected, but the procedure for effecting a change is not quite so simple under the new regulations as it was under the old. Formerly the insured person could change his doctor by taking his card across the road to the new doctor and securing his signature to Part B of the card; the acceptance took effect immediately and the insured person could obtain treatment at once. Evidence of the abuse of this right, and of its use in some cases as a lever to extract from the practitioner concessions, such as prescriptions and certificates, is cumulative. At a recent conference of a large friendly society a letter from a doctor's wife was read setting out how her husband was losing his patients by transfer because of his strict supervision of them, and his refusal to keep insured persons on sick benefit after he considered them fit for work. The delegate who read this letter urged the society to suggest some change in the regulations, whereby it should be made difficult for an insured person to effect immediate transfer. Early this year the Insurance Acts Committee of the British Medical Association suggested to the Ministry of Health that the insured person should be required to give at least two weeks' notice to the Insurance Committee of intention to change his doctor, the proposal being justified by the belief that the interposition of a formal check such as this would give the insured person, who may be annoyed because he has been refused a certificate on which he may claim sickness benefit, time to reflect. Thus the new regulations would appear to be the outcome of a demand from two of the principal parties to the insurance scheme—the practitioner on the one hand, and the approved societies on the other. Transfer by consent is not affected, but the insured person cannot in a fit of irritation threaten his doctor that he will go to a more amenable practitioner and secure the certificate to which he thinks he is entitled and which has been refused him.

There will be a wide feeling that the new regulations will help in maintaining the discipline and control which the doctor must necessarily exercise over his patient if his treatment is to be effectual. They should provide an effective check on the unreasonable demands of insured persons, for there is little doubt that many of these are under a mistaken notion as to what they are entitled to under the Insurance Acts. One of the evil effects of social insurance has undoubtedly been to create a feeling that the persons insured are entitled to secure benefits whenever they are so minded. The principle of insurance is not well understood by a large majority of the insured. Further, the competition amongst medical practitioners being what it is, and the difficulty of building up a panel practice being on the increase, it is by no means easy for the practitioner to withstand pressure of this kind. The new regulations should strengthen the hands of insurance practitioners as a whole, and help to restore them to their rightful position. It will be interesting to note what effect they have on the amount of claims for sickness benefit, for it was largely owing to the anxiety of the approved societies on this head that they were drafted. The actual working of the new scheme should not present difficulty. The insured person, on deciding to exercise his right to transfer to another practitioner, is required to obtain an authorisation from the Insurance Committee. This he does by sending his medical card to the Committee with a letter stating his intention to transfer. The medical card will be returned to him with a slip attached authorising the transfer to take effect 14 days after the date of application. This interval enables the first practitioner to continue treatment and prevents the second practitioner from taking over the case immediately except with the consent of the former. The most useful purpose to be served by the interval is, no doubt, the delay which gives the insured person time to reflect and to get over any momentary irritation. The regulations providing for immediate transfer had the effect of reducing the number of complaints

dealt with by the Medical Service Subcommittees, and the new provisions may have a contrary tendency. However this may be, it is certain that the new regulations will make for efficiency.

MEDICAL REPORT BEFORE SUMMARY CONVICTION.

IT is common enough for anyone who sits as a magistrate to find himself called upon to dispose of charges against persons of apparently inadequate mental equipment. There is a right way and a wrong way in these matters. The right way is to remand the accused person for medical report before passing sentence; the wrong way is to pass sentence without the necessary information as to the prisoner's mentality, and then to draw the attention of the prison authorities to his mental condition. The importance of following the correct method would hardly seem to require emphasis; yet it is evident that some benches of magistrates are still at fault; indeed, in one case cited in the last published annual report of the Prison Commissioners (Cmd. 2826), the magistrates actually convicted a prisoner and asked for a report upon his mental condition at the same time.

The typical cases to which the Prison Commissioners refer are instructive. A man is sent to prison for two months for assault and it is remarked that the magistrates confess great doubt as to the prisoner's state of mind, but "as there are no proofs . . . they have no alternative but to send him to gaol." The magistrates ask that the man be kept under observation in prison, and that a report be sent to them upon his release. He is certified insane at the prison, being found to have delusions of persecution and to suffer from auditory hallucinations. In another example quoted by the Prison Commissioners a woman is committed to prison for 14 days for sleeping out, and the magistrates sapiently observe that they send her to gaol "so that there can be an opportunity for mental examination with a view to a report upon her state of mind as she seems to be mentally deficient if not exactly lunatic." Although almost all courts adopt the sensible practice of obtaining a report on the prisoner's mental condition before proceeding to consider sentence, it is strange to find that there are still magistrates who believe in the method of conviction first and mental examination afterwards. The medical officer of Holloway prison makes a further point of some importance. He remarks that the present practice, when a report on a prisoner's mental state is required, is for the Clerk of the Court to stamp on the warrant words to the effect that the magistrates direct that the medical officer should inquire into the prisoner's state of mind. In 98 per cent. of such cases, however, no information whatever accompanies the request. The police, it appears, are always quite willing to give information when asked, but it should not be necessary for the medical officer to ask them. Whenever a mental report is requested, the court or the police should furnish the medical officer with all possible details of the history of the case; in any event, there should be a statement of the reason why the court asks for mental examination of the accused prisoner. The medical officer of Holloway prison is clearly right in maintaining that he is entitled in these cases to be given such information as any medical practitioner would receive when consulted about a patient.

It may be recalled that the question of investigating the mental condition of persons charged with offences was one of the matters discussed at the International Penitentiary Congress held in London two years ago. The Congress asked itself, among other problems, "What may be done to forward the judicious application of the principle of individualisation of punishment by the judge who assigns the penalty to be inflicted on the offender?" Its answer took the form of a lengthy resolution declaring that the judge should first inform himself of all the material circumstances affecting the character, antecedents, conduct and mode of life of the offender, and *inter alia* should have a full knowledge of the physical and psychic conditions and the social life of the accused, and the motives for the crime. Inquiries should be made for this purpose before the trial; penal law should give the judge the power of obtaining information from anyone who knows anything about the defendant's personality and social environment, and if these means give no sufficient idea of his physical and psychic condition, the judge should be allowed to have him examined by physicians and psychologists. While the traditions and practice of British courts of justice have little to learn from the rather vague generalisations of international congresses, the principle embodied in this particular resolution is incontestably sound. It requires to be qualified by the reflection that nine-tenths of the offences annually dealt with by the courts of this country are minor matters (usually met by fines) in which exhaustive personal investigation is neither essential nor indeed always practicable. In more serious charges, where punishment is likely to take the form of deprivation of liberty, full knowledge of the offender's personal and social history and present condition should always be obtained. Anyone who has visited a court of assize or of quarter sessions in England will be aware that our judges seldom fail to insist that such information should be forthcoming.

OPENING OF THE MEDICAL SCHOOLS.

THE following arrangements are announced by medical schools in London:—

Charing Cross Hospital.—Prizes will be distributed at the hospital on Oct. 5th at 3.30 P.M. The annual dinner will take place on the same day at the Hotel Victoria, Northumberland-avenue, at 7 for 7.30 P.M. Dr. Cuthbert Lockyer in the chair.

Guy's Hospital.—The opening address will be delivered at the Medical School on Thursday, Oct. 6th, at 3 P.M., by Mr. M. F. Hopson, who will afterwards present the prizes. The biennial dinner will be held on Friday, Nov. 4th.

King's College Hospital.—The introductory address will be delivered by Sir Berkeley Moynihan at 2.30 P.M. on Friday, Sept. 30th. The annual dinner of past and present students will be held at 7 for 7.30 P.M. on the same day at the Criterion Restaurant, Piccadilly. Dr. G. F. Still will preside.

London Hospital.—The Old Students' Dinner will be held at the Trocadero Restaurant, Piccadilly Circus, London, on Thursday, Oct. 20th at 7.30 for 8 P.M. Dr. Angus Kennedy will take the chair.

London (R.F.H.) School of Medicine for Women.—The introductory address will be given at the School on Monday, Oct. 3rd, at 3.30 P.M., by Mr. R. G. Hogarth.

St. Bartholomew's Hospital.—The Old Students' Annual Dinner will be held on Monday, Oct. 3rd, at 7 for 7.30 P.M., in the Great Hall of the Hospital. Dr. Morley Fletcher will take the chair.

St. George's Hospital. — Sir Humphry Rolleston will deliver the introductory address in the board room of the hospital at 3 P.M. on Saturday, Oct. 1st, and will preside at the Medical School Dinner to be held at the Hyde Park Hotel, at 7.15 for 7.45 P.M. on the same day.

St. Mary's Hospital.—The annual dinner of past and present students will be held at the Connaught Rooms, Great Queen-street, on Saturday, Oct. 1st, at 7 P.M.

St. Thomas's Hospital.—The annual dinner of old students will be held on Friday, Oct. 28th, at 7.30 for 8 P.M., at the hospital. Sir Charles Ballance will preside.

Middlesex Hospital Medical School.—The introductory address will be delivered on Tuesday, Oct. 4th, at 3 P.M., at the Queen's Hall by Mr. Victor Bonney, after which prizes will be distributed by Sir Charles Sargant, Lord Justice of Appeal.—The annual dinner will be held the same evening at 7 for 7.30 P.M., at the Savoy Hotel (Embankment entrance). Mr. Somerville Hastings will take the chair.

University College Hospital.—The annual dinner of past and present students will be held on Friday, Oct. 14th, at 7 P.M., at the Hotel Cecil. Sir George Blacker will take the chair.

Westminster Hospital Medical School.—The inaugural address will be given in the board room of the hospital on Monday, Oct. 3rd, at 3 P.M., by Dr. E. W. Ainley Walker, Dean of the School of Medicine, University of Oxford.—The annual dinner of past and present students will be held at the Royal Adelaide Gallery, Gatti's Restaurant, Strand, on Saturday, Oct. 1st, at 7 P.M. Dr. de Souza will preside.

Annotations.

"Ne quid nimis."

INTERPRETERS OF NATURE.[1]

Sir George Newman has written an interesting collection of nine essays dealing with the careers of men who are all closely identified with the progress of medicine though for very different reasons. The essays have appeared over a considerable interval of time; they are, some of them, official addresses, and as such have already received publicity, while others have been privately circulated as the occasion of their writing dictated. It has required an author of wide sympathies to find a common denominator in Vesalius and Keats, Sydenham and Pasteur, but Sir George Newman points out rightly that these, with Galileo, Boerhaave, Hunter, William Osler, and Michael Foster (taking the names of the heroes of medicine almost at random) have all been interpreters of what their eyes had seen or their hands had handled, and each in his day and way was a pioneer of medical progress.

The essay celebrating the tercentenary of the birth of Thomas Sydenham, in its blend of eloquence and order, is an excellent example of Sir George Newman's methods; it is also valuable reading as a medical sermon. Sydenham is one of the greatest physicians in British medicine. He was never in the strict sense of the word a medical student, but appears to have been created a bachelor of medicine by an act of patronage just before election to a fellowship at All Souls. At Oxford there were great opportunities for the acquisition of the new Renaissance learning, while Linacre had founded lectureships for teaching the doctrines of Hippocrates and Galen in the University. But to Sydenham all this traditional lore was unsatisfactory; he felt the need of clinical practice, and the urge to apply the philosophical tenets, as he came to appreciate them, to some definite uses. Accordingly, in 1655, the year of his marriage, he started medical practice in Westminster. Three years later he went to Montpellier to obtain his first insight into clinical work, from which it may be concluded that he felt doubtful as to the value of the services which his book-learning had fitted him to render. At Montpellier he acquired by personal observation and through the teachings of one Barbeyrac—evidently good both at practice and exposition—methods of practice founded upon first-hand observation of signs, of symptoms, and of the efficacy of the therapeutical measures which these indicated. Thenceforward reliance upon bedside study and recognition of the power of nature formed the foundations of Sydenham's medical practice, and in his studies of the prevalent fevers of his time he laid the foundation of modern epidemiology. Yet great clinician that he was he failed to keep in touch with the progress of physiology, and in writings dated some years after Harvey's discovery he made no mention of it.

Other essays which will be of interest and value to students of medical history are that dealing with the great Paduan medical school and that tracing the influence of Padua upon Leyden, and of Leyden upon Edinburgh through Boerhaave. The whole volume forms a remarkable illustration of the fact that living medicine has its basis on the observation of Nature.

SERUM TREATMENT OF CEREBRO-SPINAL FEVER.

ANTIMENINGOCOCCAL serum is of undoubted value in the treatment of acute cerebro-spinal fever but connected with its administration there are certain fallacies into which the physician may slip unless he is on his guard. These fallacies are discussed by Dr. Edouard Frommel in a recent issue of the *Schweizerische Medizinische Wochenschrift*, Sept. 3rd, p. 873. It has been shown experimentally, he says, that intrathecal injection of horse serum in a normal man will cause all the signs and symptoms of acute meningitis. In such an attack there is in the early stages a polymorphonuclear leucocytosis and an increase of albumin in the cerebro-spinal fluid; whilst in the later stages the polymorphs are rapidly replaced by lymphocytes. The reaction generally passes off within 48 hours, though fatal cases have been reported. In acute cerebro-spinal fever the symptoms often tend to clear up if serum is given at the onset; the signs and symptoms abate and the cerebro-spinal fluid returns to normal. In these cases the serum reaction is either masked by the real disease or, as Dr. Frommel suggests, the membranes are too badly damaged by the acute infection to react to the serum as they would in a healthy subject. The period of acute inflammation is followed by a period of recovery, during which the inflammation subsides, the cells regain their normal function, and with it their power to react normally to foreign protein. This period is characterised by an increased sensitiveness to serum, especially if it is only given at long intervals. Thus when, after the preliminary injections, serum treatment has been stopped for a time, a further injection may be followed by a recrudescence of all the signs and symptoms of meningitis and an increase of the albumin and cell-count of the spinal fluid. This recrudescence should clear up in a few days if no more serum is given, but failure to recognise its cause may give rise to errors of prognosis and treatment, because the reaction will be mistaken for a relapse of the original disease, and the administration of serum, which is alone responsible for the symptoms, may be continued. These after-effects can be avoided if serum injections, once begun, are continued at regular and fairly frequent intervals (one to three days), until all signs and symptoms have abated and the cerebro-spinal fluid is clear. Once this stage has been reached and serum treatment has been stopped for a time, it should not be started again for an exacerbation of symptoms, unless examination of the cerebro-spinal fluid has made it clear that the relapse is genuine and not merely a delayed reaction to the previous treatment. Certain cases, Dr. Frommel points out, react badly to serum from the very start, and in these it is better to stop its use immediately.

EPHEDRINE.

FOR the last 5000 years the Chinese plant, Ma Huang, has been employed as a medicinal herb in the folk medicine of the East. The plant has been identified botanically as *Ephedra vulgaris* var. *helvetica*, and 40 years ago K. Nagai isolated from it an alkaloid to which he gave the name ephedrine. Ephedra is widely distributed throughout Europe, Asia, and America, but the varieties found in America are stated by C. Nielsen, H. McCausland, and H. C. Spruth to contain no alkaloid. From the European variety of *Ephedra vulgaris* E. Merck obtained a substance isomeric with ephedrine, to which he gave the name pseudo-ephedrine. The empirical formula of these substances is $C_{10}H_{15}ON$, and they are related in structure to adrenalin, tyramine, and phenylethylamine. K. K. Chen and C. F. Schmidt were the first to investigate by experimental methods the action of Ma Huang, and to show that the prolonged rise of blood pressure, the cardiac acceleration, and the vasoconstriction observed as a result of intravenous administration of a decoction of *Ephedra vulgaris* were due to the presence of ephedrine in the crude drug. They showed further that the action of ephedrine on the circulation, on smooth muscle, and on secretion was analogous to that of adrenalin and was due to a stimulation of the neuro-muscular and neuroglandular intermediate substances. While for the most part ephedrine elicits responses similar to those produced by adrenalin, there is one outstanding difference between the two drugs.

[1] Essays. By Sir George Newman, Chief Medical Officer, Ministry of Health. London: Faber and Gwyer, Ltd. Pp. 296. 12*s*. 6*d*.

Ephedrine, being more stable, is effective when given by the mouth. Chen and Schmidt showed that a dose of 60 mg. given in this manner to a man produced a rise in blood pressure amounting to 20–30 mm. Hg in 15–30 minutes, and that this rise persisted for three or more hours. Another difference between the action of the two drugs is also related to the higher stability in solution of ephedrine. Its action is less intense but more prolonged than that of adrenalin. For example, in a comparative study of the physiological actions of ephedrine, tyramine, and adrenalin, Chen and Schmidt found that ephedrine in a dose 500 times as great as that of adrenalin produced a similar rise in blood pressure when given intravenously to anæsthetised dogs, but that the height of the rise was more slowly attained and its duration about seven times longer than the rise produced by adrenalin. The effect of tyramine on the blood pressure of anæsthetised dogs was found to be intermediate, in intensity and duration of response, between that of adrenalin and that of ephedrine. Tyramine, however, in doses of 100 mg. by mouth produced no rise in blood pressure in man, whilst an equimolecular dose of ephedrine raised the systolic and diastolic pressures by 15–20 mm. Hg under these conditions. It seems probable that the increased stability of ephedrine over tyramine, and of tyramine over adrenalin, is related to the number of phenolic hydroxyl groups contained in the molecule, adrenalin possessing two, tyramine one, and ephedrine none. These differences, however, are insufficient to account entirely for the differences in physiological response produced by the three substances. Were this not so, the action of β-phenylethylamine on blood pressure would be as prolonged as that of ephedrine, whereas in point of fact the action is of greater intensity, but of much shorter duration. Moreover, as shown by Chen, β-phenylethylamine, like adrenalin, is inactive when given in doses of 50–150 mg. by mouth to man, and pseudo-ephedrine, which differs from ephedrine merely in the reversal of the stereochemical configuration of the —HCOH group, shows an action similar in type to that of ephedrine on the blood pressure of man and of dogs, but much weaker in intensity. It is clear, then, that the constitution of the side chain of the phenyl ring is an important determining factor in the pharmacological action of these drugs.

A substance having the pharmacological properties of ephedrine should prove of great value clinically in those conditions in which a prolonged adrenalin effect is desired. Its action in man has recently been the object of a series of physiological and clinical investigations. W. S. Middleton and K. K. Chen have studied the objective and subjective effects of its administration by mouth to man, the ophthalmological effects of its local application, and the reactions of asthmatics to the drug. They find that doses varying between 50 and 400 mg. produce an average rise in systolic pressure of 28 mm. Hg, and that this rise is usually accompanied by some quickening of the pulse. The rise in pressure is manifested about 30 minutes after the oral administration of the drug, reaches its maximum in about one and a half hours, and begins to fall about two hours later. The dose recommended by them is from 60–90 mg., and with this amount such untoward symptoms as perspiration, tremor, palpitation, and faintness, sometimes observed with the larger doses, were absent. They have also been able to confirm the original observation of K. Miura in 1887 on the mydriatic effect of the drug, in that dilatation of the pupil begins about 15–30 minutes after instillation, reaches its maximum in 30–60 minutes, and lasts from 3–9 hours. No signs of conjunctival irritation were observed. Ephedrine has also been shown to be effective in the treatment of spasmodic asthma. Its beneficial action in this condition has been demonstrated by W. Berger and H. Ebster, and according to them it sometimes produces relief in cases of migraine. These investigators have recently made a clinical study of the action of ephetonin, a synthetic substitute for ephedrine. This substance also is active when given by mouth to man, and benefit is stated to have been observed in a large number of mild and moderately severe cases of asthma, in chronic bronchitis, and in hay fever, in which last condition the drug was employed in 5 per cent. solution as a nasal spray. It seems likely that in ephedrine we possess a valuable therapeutic agent, but the extent and limitations of its use can only be determined by more extensive clinical investigation.

GERMAN DERMATOLOGICAL CONGRESS.

THE fifteenth annual congress of the Deutsche Dermatologische Gesellschaft was held at Bonn from Sept. 5th to 7th, and was a notable gathering, both from the scientific and the social point of view. Prof. Erich Hoffmann, of Bonn, whose name will always be associated with that of Schaudinn in the discovery of the spirochæte of syphilis, made an admirable chairman, and was ably seconded by a large staff. The meetings, at which no less than 115 communications were offered for debate, were held in the Beethoven concert hall, and the main features of the programme were papers and discussions on the biological and physical characters and effects of X rays and of the Bucky "borderland" rays which have been on trial in Germany for the past year. Dr. G. Bucky, who now lives in New York, himself took part in the discussion. Among some 400 dermatologists who attended the congress were Prof. P. G. Unna, who was described by the chairman as the Nestor of dermatology, and Profs. Karl Herxheimer (Frankfurt), Josef Jadassohn (Breslau), J. R. Almkvist (Stockholm), Howard Fox (New York), and J. F. Schamberg (Philadelphia). The sessions began daily at 9 A.M. and with a luncheon interval of two hours continued till 6 P.M. On the last afternoon, at Prof. Hoffmann's clinic, there was a demonstration of many rare and interesting cases, these being afterwards discussed in full conclave in the Beethoven hall. Official but quite informal entertainments were provided every evening, not the least popular of these being a river trip to Remagen by Rhine steamer with fireworks and illumination of the Bonn frontage. Thanks largely to Frau Hoffmann and her lady helpers the meeting added fresh lustre to the reputation for hospitality which the city of Bonn has so long possessed.

POISONING FROM SOLID FUEL.

DURING the war when methylated spirit was difficult to obtain solidified fuel became popular as a substitute. It has certain advantages over a fluid fuel, such as portability, and many people still find it convenient especially for use when travelling. In the September issue of the *Analyst* Sir William Willcox and Mr. C. Ainsworth Mitchell draw attention to the danger of leaving such tablets within the reach of children. They describe a case where serious illness followed the consumption by a boy of 16 of 5 g. of a substance which was designed for use as fuel, and which on examination agreed in its characteristics and reactions with metacetaldehyde. The boy is said to have swallowed a portion of a tablet in mistake for a sweet. No ill-effects occurred till seven hours after when the patient became flushed, restless, and delirious. A few hours later the temperature rose to 100° F. and convulsions occurred, followed by five further attacks of convulsions. The urine had sp. gr. 1·014, was very acid, and contained a trace of albumin. There was marked tenderness of the calves of the legs during this period. The temperature remained between 100° and 101° F. for 36 hours and then fell to 99° F., where it remained for 24 hours, afterwards becoming normal. The treatment consisted in large doses of alkalis (in the form of sodium citrate, 60 gr.; sodium bicarbonate, 30 gr.; water to 1 oz.) given every four hours by the mouth. Rectal injections of 2 drachms of sodium bicarbonate to the pint of normal saline were given every six hours. Throughout the period during which the convulsions

occurred chloral (10 gr.) and potassium bromide (30 gr.) were given four hourly. The urine remained very acid for three days in spite of the large doses of alkali that were administered. After the convulsions had ceased potassium bromide, in doses of 15 gr., was given three times a day for four days. The patient made a good recovery, but the albuminuria persisted for four days. After recovery there was some loss of memory for several days. Sir William Willcox and his collaborator comment on the curious fact that metacetaldehyde should be so much more active than its isomer, since relatively large doses of paracetaldehyde (paraldehyde) can be taken without ill-effects. It is possible, however, that the action may have been due to an impurity.

MUSCULAR EFFORT AND CARDIAC FAILURE.

THE limitation of muscular effort and its relation to cardiac failure was discussed in the July issue of the *Quarterly Journal of Medicine* by A. E. Clark-Kennedy and Trevor Owen. Experiments were performed on healthy young adults to determine the respiratory exchange at increasing rates of work, which was of a very severe nature. The effect of breathing air containing 26 per cent. and 16 per cent. of oxygen, and also a mixture of air and 5 per cent. carbon dioxide, while performing similarly severe work was also determined. It is concluded that the alterations in the respiratory exchange during exercise, when air or other oxygen-nitrogen mixtures are breathed, are chiefly due to lactic acidosis, and when the pressure of carbon dioxide in the inspired air is also increased, a lactic and carbonic acidosis are concerned. The authors maintain that carbon dioxide elimination as well as oxygen supply must be an important factor in determining the amount of work of which a man in capable. An increase of oxygen in the inspired air makes the elimination of carbon dioxide easier, by delaying the accumulation of lactates, the physico-chemical factor in the limitation of voluntary effort being a rise of hydrogen-ion concentration in the blood and tissues. This is ultimately dependent upon failure of the whole cardio-respiratory system, including the heart, lungs and blood, but the output of the heart is sufficient to cope with the venous return, and the circulation does not fail before the ventilation. In heart failure due to disease, there is clinically venous congestion and œdema of the lungs and other tissues. This does not occur in extreme muscular exhaustion in health. It is therefore improbable that the mechanism is the same in both cases—i.e., exhaustion of the reserve power of the heart. In compensated heart disease congestive heart failure does not occur with violent muscular effort, the exercise being compulsorily abandoned before cardio-respiratory disintegration occurs. This could be explained if the ability to effect pulmonary ventilation is reduced in a degree corresponding with the reduction in the heart function, and it has been shown that the vital capacity is diminished in patients with heart disease. This may be due to a protective mechanism, and if this protective reaction fails, congestive heart failure would occur. The article is illustrated by two plates showing the apparatus used and full details are given of the experiments on which this theory of heart failure is based. In the concluding discussion Clark-Kennedy and Owen compare the mechanism of limitation of effort in health with that which is found in congestive heart failure, where not only does circulation fail before ventilation, but the cardiac output no longer keeps pace with the venous return; for, as they point out, the term heart failure is capable of more than one interpretation. To the physiologist it signifies that the heart is no longer able to maintain an adequate blood-supply to the active tissues; oxygen-want, in other words, is their criterion, since all the manifestations of circulatory insufficiency consequent on violent exertion, in the normal healthy individual, can be accounted for by oxygen-want. The clinician, on the other hand, is accustomed to think in terms of the abnormal. He is concerned not with healthy young men, but with those less fortunate persons whose myocardium is already scarred by rheumatic or other infection. The clinician's picture of advanced heart failure is something quite unknown in the realms of physiology; it is that of the patient with orthopnœa, œdema, and venous congestion of the internal organs. These symptoms are manifestations not of oxygen-want, but of the inability of the ventricles to keep pace with the venous inflow. It is with the first of these two conceptions that the writers' experimental observations are concerned. Prof. A. V. Hill and his colleagues have shown that the duration of violent exercise is limited by the oxygen intake. When the oxygen requirements of the tissues are greater than the supply coming from the lungs the body contracts, as they express it, an "oxygen debt." The more violent the exertion the more rapidly does this debt mount up. But like other overdrafts it had its limitations, and the attainment of these limitations spelt the cessation of exercise. Thus the mile runner has to go more slowly than the sprinter or his oxygen debt will stop him before he reaches the tape. Having worked out the limitations of oxygen intake and oxygen debt respectively, Hill was able to calculate the speeds at which it is theoretically possible to run different distances; and he has shown that the times calculated in this way were just a little better than the corresponding actual records established by the world's champion athletes. Clark-Kennedy and Owen now suggest that CO_2 output as well as oxygen intake should be considered in this connexion; and further, that the limitation of voluntary exertion in normal subjects depends on a simultaneous failure of cardiac and pulmonary functions. The latter hypothesis is opposed to that which has hitherto been current—namely, that circulatory insufficiency supervenes while pulmonary ventilation still remains adequate.

MECHANICS OF THE GALL-BLADDER.

THE exact mechanism by which the gall-bladder empties its contents is still unknown. The theory that the flow of bile is regulated by any sphincter-like action at the mouth of the gall-bladder can no longer be maintained, and in view of recent research it is even difficult to find evidence of any active contraction on the part of the muscle of the gall-bladder itself. The introduction of cholecystography by Dr. E. A. Graham has not only led to easier diagnosis in many cases of gall-bladder disease, but is enabling workers in all parts of the world to investigate more closely the physiology of the biliary tract. The work of Dr. Graham himself and of his associates, G. H. Copher and S. Kodama, has suggested that the rôle of the gall-bladder is chiefly passive, its contents being emptied mainly by the washing out of bile when fresh bile flows in, or by the elastic recoil of the distended gall-bladder at the moment when relaxation occurs of Oddi's sphincter at the duodenal termination of the common bile-duct. The chief evidence for this view lies in an ingenious series of experiments in which a small rubber bag was substituted for a gall-bladder in a dog and was shown to fill up with dye and subsequently empty itself in just the same manner as the gall-bladder itself had done. Recent work by G. E. Burget [1] of the University of Chicago goes to support the theory that the gall-bladder itself is incapable of contraction and that its control of the bile flow is confined to the action of a certain tonus which facilitates emptying when the opening into the duodenum becomes patent. An opposite view is set out by A. Hamrick, of the Mayo Foundation, Rochester.[2] He has made numerous studies with the aid of X rays of the movements observed in animals after the injections of iodised oil into the gall-bladder. The opaque oil was

[1] G. E. Burget: Amer. Jour. Physiol., 1927, lxxxi., 422.
[2] R. A. Hamrick: Amer. Jour. Med. Sci., 1927, clxxiv., 168.

introduced directly into the gall-bladder by a simple surgical operation, and X ray photographs taken during the subsequent period demonstrated its progress from the biliary tract into the intestine. In a large series of animals no expulsion of oil or other movement was ever observed during fasting, nor did factors such as increased intra-abdominal pressure appear to have any effect. However, when food was administered—especially food of a fatty nature, such as egg-yolk and cream mixture—the gall-bladder appeared to empty rapidly. Just before or during emptying the shape of the vesicle became elongated and pointed towards the cystic duct, an appearance which was noted so frequently that Hamrick concluded that it must be indicative of some intrinsic contraction of the musculature of the gall-bladder. Emptying did not continue simultaneously with digestion, the meal being expelled from the vesicle at various intervals following the ingestion of food. In another experiment a rubber tube was fixed so that it proceeded from the lower portion of the common duct through Oddi's sphincter in the lumen of the duodenum, keeping the lower end of the duct continuously open. In these circumstances external pressure over the gall-bladder was sufficient to expel some of its contents, but complete emptying was only brought about by feeding. Hamrick considers that the muscle of the gall-bladder itself is the main agent bringing about normal emptying of the organ, but it is hard to discover in his published work sufficient ground for this opinion. It is, on the other hand, abundantly clear, as other observers have insisted, that emptying occurs in relation to movement of the duodenum. The theory of contrary action of Oddi's sphincter and the musculature of the gall-bladder has not found support in recent years, but Hamrick's present work does, perhaps, give grounds for believing that the movements of the bile vesicle are not as entirely passive as has recently been maintained.

CITY HEALTH ADMINISTRATION.

NEITHER the lay public nor the bulk of the medical profession has any clear conception of the variety of duties and responsibilities undertaken by those who enter the public health services. The former visualise the health departments as clearing-houses for complaints about nuisances more or less vaguely affecting the public health; the latter are most familiar with the operations of the epidemic sections of these departments, having as a rule but a hazy idea of the ramifications of their other pursuits and viewing them with a cynical suspicion which is rarely acute enough to promote a closer inquiry. Dr. Carl E. McCombs, of the National Institute of Public Administration and New York Bureau of Municipal Research, has written a book entitled "City Health Administration,"[1] which is designed to enlighten all classes of the American public on the subject; it is written in a lucid and interesting style, and its scope and thoroughness clearly mark it out for the use of those who are preparing for a life of public service, whether official or voluntary, and the lessons which it gives will be useful in all countries.

The book is divided into three parts dealing with (1) Municipal Health Functions; (2) the Organisation and Administration of Sickness Preventive Functions, and (3) the Organisation and Administration of Sickness Treatment Functions. The unattractive character of these headings should not be allowed to repel the prospective reader. Under each of them the existing arrangements in America are described and criticised in a succession of chapters devoted to every aspect of the organised prevention and treatment of disease. On this side of the Atlantic the subject is one of first importance, since the Government's proposals in relation to the administration of the Poor-laws are likely to bring the whole of British public health administration under critical inspection at no distant date. Dr. McCombs, with whose point of view we find ourselves throughout in substantial agreement, will repay careful reading by all who are interested in the municipal side of local government. Young public health officials, too, will find help in the solution of many of the awkward problems of administration with which they are constantly faced.

[1] London and New York: The Macmillan Company. 1927. Pp. 524. 24s.

ALTHOUGH the returns of the general election in the Irish Free State are not complete at the time of writing, a number of medical men have already been elected. In South Dublin, Dr. T. Hennessy was elected on the first count, heading the list of Government successes, while Dr. Myles Keogh, who formerly sat as an Independent but now comes forward as a Government candidate, was also elected in the same constituency. In Co. Cavan, Dr. J. J. O'Reilly, also a Government candidate, was successful. Three medical men have been returned in the Fianna Fail interest—namely, Dr. P. J. O'Dowd in Co. Roscommon, Dr. James Ryan in Co. Wexford, and Dr. F. C. Ward in Co. Monoghan. In addition to these six, Sir James Craig has been returned as an Independent Member for Dublin University.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

CCXLII.

THE TREATMENT OF OPEN FRACTURES OF THE LIMBS.

THE main treatment of any open fracture must be (1) to render the wound clean, which entails a thorough excision of all lacerated tissues; (2) to convert it as soon as is possible—i.e., immediately or by secondary suture—into a closed fracture, and (3) to rectify the fracture itself.

Excision.

It may be urged that a complete excision is unnecessary when the wound is caused from within by a sharp fragment which has perhaps momentarily penetrated the skin, creating a small puncture wound, and when the damage to the skin and muscle are slight. The necessity for excision in these cases must depend on individual judgment based on the condition seen; in some cases interference is unnecessary. When there is doubt prejudice should be in favour of excision, since otherwise a definite risk of sepsis is involved. Not only is the virulence of an infective agent an unknown quantity, but the whole point of excision as a routine is to cleanse the wound and so gain the one chance of its successful primary closure. With a few exceptions it is safer to apply the rule of complete excision to all open fractures.

When a large fragment has penetrated the skin from within, or the external injury from without has caused an extensive wound with much laceration of the skin and soft tissues, it may not be possible to close the wound after excision. This is more especially true in wounds on the inner aspect of the leg and the region of the ankle-joint, common sites for such injuries. In such circumstances it is useless to bring the skin together under tension, since sloughing almost invariably follows; in my experience, too, it is a dangerous procedure to undermine the skin in order to close the wound, since in this way an infective agent is given a wider area over which to act. In such cases, therefore, it must be recognised that the severity of the injury to the soft tissues has excluded the possibility of obtaining a completely closed fracture immediately; and though such wounds are usually allowed to heal by granulation, if the chance arises for closure by secondary suture it should be

taken. When in the first instance the wound is left open it is necessary only to cover it. Drainage-tubes, gauze packs, and so forth serve no useful purpose; they are, as a rule, sure paths of infection and should not be introduced.

It may be reasonably urged that if open fractures do not come into a surgeon's hands until a day or two after the accident, when infection has already occurred, it is either not necessary or not justifiable to deal with the wound radically. Again, every case must be judged separately. It may be unnecessary to excise a small wound which has been inflicted 24 or 48 hours previously and is not septic. On the other hand, if infection is present but localised a complete excision is often practicable, and may be extremely useful; but it is problematical whether free excision at this stage will render sterile an already infected wound, and complete closure at any rate should not be attempted. In the civil open fracture it is rare to encounter an acutely spreading infection which demands wide incisions, or even removal of the limb. The essential point is that all open fractures must be treated within the first few hours, and in the majority of cases infection is prevented by excision of the wound within six or up to twelve hours of its causation. As a general rule, the presence of shock need not be a contra-indication to excision and splinting. How far such a course may be negatived by severe shock must be a matter of judgment, and it should be borne in mind that immobilisation of the injured limb in itself tends to reduce shock.

To fulfil the demand of a complete excision it would appear logical that the fractured surfaces or fragments of bone which have been exposed to infection should be removed. In the completely shattered bones caused by gunshot, some surgeons advocated the removal of all completely loose fragments, while others retained all fragments of any size as useful for the eventual repair of the bone, though by doing so sepsis might be prolonged. It has been recommended, too, in civil open fractures that the protruding fragments should be excised. In my practice this procedure has not been adopted, as apart altogether from the inevitable shortening, or risk of non-union, fragments of any size are necessary for the restoration of alignment, and in the lower limb especially are essential for the restoration of the full strength of the bone for purposes of weight bearing. In all cases the very small completely detached fragments of bone are removed together with the shreds of periosteum, and the exposed surfaces of the larger fragments cleansed; in the exceptional case the nature of the accident or intense soiling of the fragments may demand a more extensive removal of bone; in the majority, however, it is justifiable, in my opinion, to preserve all bone fragments.

Restoration of Alignment.

The alignment of the bone should be restored after the excision has been completed. Often it is extremely tempting to fix the fragments in position straightway by a plate or other means, especially as it is a common experience afterwards to find that slipping has occurred from the reduction obtained at the operation. In all probability fixation may be done many times without untoward results, but as a general rule, in my opinion, it should never be done. The main concern at this stage must be to obtain a clean and, if possible, a closed wound, and the alignment, though it should be attended to, for the moment must be a secondary consideration. There is no knowledge of the type of organism that has gained entrance and no guarantee that the excision has been sufficiently complete to prevent sepsis; the risks of infection in every case are too great to permit of the introduction of any foreign body for the purpose of fixation, and the results seen from this are often lamentable.

If it is not possible to maintain alignment by suitable splinting and traction then at a later date (10–14 days), if there is no evidence of sepsis in a closed wound, an open operation may be performed and reduction and fixation effected. This should be done in the full realisation of the fact that sepsis may be lit up immediately, or that a mild infection may occur at a later date; under no circumstance should such an operation be undertaken in the presence of a still open wound. In favour of operation it must be realised that gross displacement, obvious within a week or two of the accident, tends rather to increase than diminish; that in the leg, where this question is most likely to arise, errors of alignment give rise to greater disability than in any other part of the body; that the margin of time in which a perfect result can be obtained is a small one, for if the question is shelved and an operation is decided upon when malunion has occurred, far greater mechanical difficulties present themselves, and the chance of the perfect result is much diminished. With a better understanding, however, of the necessity and requirements of the initial operation and of the more effective methods of splinting, the secondary operations should become increasingly unnecessary.

The Value of Complete Immobilisation.

The maintenance of absolute rest of the part wounded must be achieved by the splinting. The value of a complete immobilisation of a limb in these cases cannot be over-estimated; if it is essential to assist in the healing of a wound that has been closed by operation, it is even more essential for the wound that has become infected. Immobilisation is best obtained in both the upper and lower limbs by means of a Thomas splint with traction, which must be suited to the position of the wound; it should be continued until the wound has healed or sepsis has quietened, when, if the alignment is satisfactory, provision may be made to permit of voluntary movements of the joints. Occasionally, in the lower limb more especially, the mobility of joints may have to be sacrificed temporarily, at any rate, in order to obtain stability of the bone.

In my own experience union is delayed more frequently after an open fracture than in any other type, not including the cases in which there has been an obvious infection. Even in the best circumstances, when the wound has been excised and closed, alignment restored, the limb appropriately splinted, and any obvious signs of inflammation are absent, union may be delayed for a considerable time. It is my impression, founded on the condition found at secondary operations, that it is the presence of a septic infection which prevents union, though it is of so mild a degree that there has been no obvious evidence of it in the wound or in general systemic disturbance. In the large majority of such cases union does eventually become firm, though to achieve this immobilisation at the site of fracture may have to be considerably prolonged. If, therefore, the alignment of the fragments is satisfactory, a secondary operation should not be undertaken for delayed union in these cases; operative measures will tend to maintain or exaggerate the sepsis, however mild, and thus defeat their own object.

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PRINCE OF WALES'S HOSPITAL, TOTTENHAM.—Towards £50,000 appealed for on behalf of the Prince of Wales's Hospital, Tottenham, Sir Albert Barratt, one of the governors, promised £10,000 on condition that the hospital raises a like amount. This has now been done and the donation has accordingly been claimed.

CHARING CROSS HOSPITAL.—The income of Charing Cross Hospital last year was £56,272 and the expenditure £54,810, thus leaving a balance of income over expenditure of £1462. The hospital having acquired the adjacent premises, formerly occupied by the Royal Westminster Ophthalmic Hospital, which has been removed elsewhere, will utilise them for some of the present needs. The sum of £70,000 had to be paid for the freehold and buildings and £30,000 will be required for alterations and equipment. The hospital is out of debt.

Special Articles.

THE UNIVERSITY OF LONDON: ITS PRESENT CONSTITUTION AND MACHINERY.

BY PERCY M. WALLACE, M.A. OXF.,

I.*

BY the promulgation on February 13th, 1900, of the Statutes made by the Commissioners appointed by the University of London Act, 1898, followed a fortnight later by detailed Regulations supplementary thereto, those responsible for the administration of the University, together with a large number of institutions and individual men and women intimately concerned with the subject-matter of these documents, found their long suspense at an end. At last they knew where they stood—or rather where they would stand as soon as these Statutes and Regulations came into active operation. On the whole the prevailing sentiment was one of relief. That there was not to be a second University established in London had of course been made manifest two years previously by the instructions and provisions set forth in the Act by which the Commissioners were appointed. The schemes for the foundation of an entirely new teaching University, with the title of "Albert" or later of "Gresham," had failed to attract sympathetic attention in high quarters, and had perished almost still-born; the advocates of a third, by which the existing institution, with its territorially extensive area of influence, should be retained under the title "University of England," while a new federal body controlling higher education within the metropolis should take over the old designation "University of London," had underestimated the fervent pride with which the existing graduates treasured their vested interest in titles which had for over sixty years testified to a high academic standard, attained in many cases under serious disadvantages. A sound instinct and a not ignoble sentiment had together won the day. Apprehension, therefore, of the obvious confusions and overlappings and irritations that would have arisen from the co-existence in London of two degree-giving institutions both enjoying the title of "University" was no longer present. But until the full text of the new Statutes and Regulations had been definitely published it was not possible to forecast the future with any certainty.

At last, however, the long contest was over. The proposals and counter-proposals, the concessions and compromises, the revisions and re-revisions, the cross-currents and oblique currents of heterogeneous oppositions, which marked the long agitation for reform,[1] were consigned to countless waste-paper baskets, and the path of future development was in its main outlines plain for all to see. In what follows I have thought it most profitable, not to summarise the formal language of the Statutes section by section, but to indicate their practical bearing upon the situation at the moment of their promulgation. Similarly, it will be more immediately intelligible if I refer to various bodies by the names commonly used in the University, in preference to the more cumbrous official titles by which they are designated by the Commissioners.

Three Main Departments.

The University as reconstituted was to be neither unitary nor federal nor professorial in the normal sense of those terms, nor of any other single type—indeed, it was to be exceptional in structure in correspondence with the exceptional character of the conditions that had necessitated its reform. It was to be organised, so to speak, vertically in three main Departments—the Internal, the External, and the Extension—each under the immediate supervision of a Standing Committee of the Senate. For convenience' sake, let us take the External first. The Committee in this case, consisting mainly of the representatives of the graduates and known as the External Council, had for its function to advise the Senate upon the various matters that had constituted the province of the old University, the work of which may thus be regarded as having been taken over intact as a going concern. These matters were the superintendence, regulation, and conduct of the several examinations of students—metropolitan, provincial, and colonial, in whatever locality and by whatever methods prepared for their successive tests[2]—the appointment of their Examiners, the recommendation of their courses of study, and their status and interests generally; these were henceforth to be designated "External Students." Similarly, the main business of the Extension Board would be to advise the Senate upon the maintenance within the London area of "University Extension" courses of lectures under the system at that period administered (roughly speaking) by Cambridge in the north and east of England, by Oxford in the south and west, by Manchester in Lancashire, and in London and its suburbs, where there was then no corresponding authoritative body in the possession of machinery for comprehensive higher education of this character, by an independent Society, established for this purpose alone and conducting its own procedure and finance, but advised in the appointment of Lecturers and Examiners by a Joint Board constituted in equal proportions by the Universities of Oxford, Cambridge, and London. To the Extension Board was further to be entrusted the duty of advising the Senate upon the inspection and examination of secondary schools.

Of the three vertically parallel Departments, therefore, the second and third (according to the order in which they were named in the Statutes) were charged with definite and clearly ascertainable functions already for many years in full and experienced operation, though up to that time they had been exercised by different bodies. But it was upon the Department first named in the Statutes that the Commissioners had bestowed the greatest proportion of their labours; and this was the feature of their work that attracted the chief interest of those engaged, corporately and individually, in the higher education of the metropolis. A fresh creation was required to solve the intricate problem and to put an end, definitely and with precision, to the prolonged controversies. There was to be a new body, a Standing Committee entitled the Academic Council, consisting almost entirely of representatives, appointed on a Faculty basis, of the teaching staffs of institutions that were henceforth to be component parts of the reformed University; and the duty of this body would be to advise the Senate upon all matters concerned with the status and interests of "Internal Students"—that is, of matriculated students who were pursuing approved courses of study in "Schools" of the University or in other institutions under its own Teachers.

The Twenty-four Schools.

It is necessary here to explain the signification and content[3] of various terms used in a technical sense in the Statutes as framed by the Commissioners. The "Schools" were to be public educational institutions

* Part II. will appear in the next issue of THE LANCET.

[1] Some account of these, "swift shafts that speak to the initiate," but a bewilderment and almost a stupefaction even to the intelligent reader of to-day who had not followed the controversies at the time, appeared in THE LANCET of September 3rd, 1898 (pp. 591–593).

[2] This phrase is, of course, not applicable to medical degrees, for which evidence of attendance and clinical practice at some recognised Medical School had always been required; but from 1858 onwards all other degrees had been awarded solely by examination.

[3] In giving these explanations I have not used the phraseology of the Commissioners, but have as far as possible set out their meaning in ordinary language.

(that is, institutions not carried on for profit by the proprietors) in London,[4] of established position, with staffs and equipments adequate for the standard required by the University; and the Commissioners themselves designated twenty-four institutions as qualified to be the first enrolled in this category. These were University College in the Faculties of Arts, Laws, Medicine, Science, Engineering, and Economics; King's College in the same six and Theology; Hackney College, New College, Regent's Park College, Cheshunt College, Wesleyan College (Richmond), and St. John's Hall (Highbury) in the Faculty of Theology; the Royal Holloway College and Bedford College in the Faculties of Arts and Science; the Royal College of Science in the Faculty of Science, with the Wye Agricultural College in the branch of Agriculture only; the Medical Schools of St. Bartholomew's, London, Guy's, St. Thomas's, St. George's, Middlesex, St. Mary's, Charing Cross, and Westminster Hospitals and the London School of Medicine for Women in the Faculty of Medicine; the Central Technical College of the City and Guilds of London Institute in the Faculty of Engineering; and the London School of Economics in the Faculty of Economics and Political Science. At each of these "Schools" the Commissioners specified by name and subject such members of the staff as they considered suitable to constitute the first company of "Recognised Teachers"—to the total number (including "recognitions" of the same person at more than one "School") of 440.

In addition to these specially privileged foundations there were a number of others, less elaborately or comprehensively organised, and in most cases concerned only with one or more branches of the purview of the Faculty concerned, which for these or other reasons the Commissioners did not consider worthy of the rank of "School," but which conducted specialised work of the requisite high standard; at these institutions selected Teachers were individually recognised as members of the University staff.[5] To take the illustration which is of special interest to readers of THE LANCET, the Institutions of this kind whose activities fell within the scope of the Faculty of Medicine were the London School of Tropical Medicine, the London School of Dental Surgery, the College of the National Dental Hospital, the Institute of Dental Technology and School of Mechanical Dentistry, the School of Pharmacy of the Pharmaceutical Society, and the Medical Schools of (or Classes at) the Royal London Ophthalmic Hospital, the National Hospital for the Paralysed and Epileptic, the Brompton Hospital for Consumption, and the Hospital for Sick Children. It should be added, to make clear the governing policy of the Commissioners in this matter, that "provisional recognition" was also accorded to fifty members of the staffs of the twelve above-mentioned Schools in the Faculty of Medicine who were engaged in teaching Preliminary and Intermediate subjects, such provisional recognition to be effective until the Senate might be able to provide or secure common courses of instruction for Internal Medical Students in those subjects at some one or more centres under their immediate control. This project, thus tentatively though hopefully put forward by the Commissioners, failed of realisation, as will be recorded later.

But these "Recognised Teachers" were not to constitute by themselves the teaching staff of the re-organised University. It was from the nature of the case manifest that on first getting to work the Internal Department would have no University staff at its disposal, but would on the other hand be concerned with the staffs of two dozen Colleges and other institutions of established position, many of which had been with notable success carrying on work of University rank for half a century or longer. Hence the care with which the Commissioners drew out their scheme for the recognition by the University of individual Professors, Lecturers, and other teachers at these existing foundations, and provided the new Senate with the select nucleus indicated above. It was also manifest that for the fulfilment of its highest purposes the University must in due course have a staff of its own—that is, appointed by itself under its own conditions and working under its own direction. For the creation, however, of such a body—Professors, Readers, and Lecturers, for whom generically the distinctive title of "Appointed Teachers" was prescribed in advance—with Demonstrators and other assistants, considerable time would be required; and in the meanwhile it would be the business of the Senate to encourage a new corporate spirit among the existing staffs (several of which could boast men and women of the highest distinction), and to expedite the work of reconstruction by setting in motion the machinery of correlation and co-ordination further provided by the Statutes. For plainly, if the Internal side of the University was to develope an organic unity and character of its own, there must be established as speedily as possible opportunities for regular and continuous deliberation among those who in their respective departments of study had up to that time been working, if not in isolation, at any rate independently, under their several governing bodies.

Boards of Studies.

This brings us to the consideration of the Boards of Studies, which, with reference to the suggested description of the Internal and External Departments as working in vertically parallel planes, may be regarded as forces operating upon them horizontally. On these bodies the Statutes conferred very extensive powers, for the full appreciation of which it is necessary to understand exactly the position of the higher authorities designed for the University. It will have been observed that, in summarising the functions of the three Statutory Standing Committees, I used in each case the phrase "to advise the Senate upon. . . ." This was not accidental—it indicates a fundamental principle of the new constitution. These bodies were to be purely advisory, not only the supreme government of the University but the entire management of all its affairs, concerns, and property being vested in the Senate alone. This ultimate authority, however, was forbidden by the Statutes to come to any determination upon any matter relating to the Internal or to the External department of its work until it had invited and received a report thereon from the Academic or from the External Council respectively. In order that there might be no question as to the extent of this limitation of the powers of the Senate, the Statutes specified at considerable length the matters to which it applied—with such particularity, indeed, that the concluding clause in each case ("generally upon any matter relating to the Internal [*or* External] Students") appears almost redundant. On the same principle, the two Councils were themselves instructed to invite and receive reports from the relevant Board or Boards of Studies before tendering to the Senate advice upon "any matter relating to courses of study, provision for teaching or research, examinations and the appointment of Examiners, or the granting of degrees or certificates of proficiency." This precise and rigid restriction of the powers, first of the Senate and secondly of the two Councils, in all matters that concerned the education and examination of Internal Students and the examination of External Students, was of the essence of the reconstruction of the University. For this reason, and as indicative of the scope of its operations as conceived in the mind

[4] "Within the administrative County of London including the County of the City of London" is the official normal limitation for Schools; from this the Royal Holloway College and the Wye Agricultural College were by Act of Parliament specifically exempted. For virtually every other purpose the area within which the University was to work was that of a circle with a radius of thirty miles from its Central Office.

[5] In the complicated nomenclature of the University's reorganisation it was at an early stage found convenient to speak of these institutions at which, not being "Schools," there were, either by this nomination of the Commissioners or later by the action of the Senate, "Recognised Teachers," as "Institutions" *par excellence*, in contrast with "institutions." The expression "Schools and Institutions of the University" thus obtained a quasi-statutory significance.

of the Commissioners, and further in view of the lines upon which the work of the Senate will later be shown to have developed during the past twenty-seven years, it appears desirable to set out in this place the titles of the original Boards of Studies. The list drawn up by the Commissioners and by them recommended for immediate appointment consisted of thirty-two :—Theology ; the Greek and the Latin Languages and Literatures ; Oriental Languages and Literatures ; Mediaeval and Modern Languages and Literatures ; History ; Archaeology and Palaeography ; Philosophical Studies ; Pedagogy ; Fine Art (for all the Fine Arts, exclusive of Music but inclusive of Architecture) ; Laws ; Economics and Political Science (including Commerce and Industry) ; Music ; Preliminary Medical Studies ; Intermediate Medical Studies ; Advanced Medical Studies ; Dentistry ; Pharmacy ; Hygiene and Public Health ; Mathematics (including Astronomy and Navigation) ; Physics ; Chemistry and Chemical Industries ; Geology ; Botany ; Zoology and Comparative Anatomy ; Physiology and Experimental Psychology ; Ethnology ; Geography (Physical, Political, and Commercial) ; Civil and Mechanical Engineering ; Electrical Engineering ; Marine Engineering and Naval Architecture ; Mining and Metallurgy ; Agriculture.

By its breadth of range this scheme secured to those concerned with every subject of University study ample and definite opportunity of making their views—the views not only of skilled specialists but also of practical instructors—known to the Senate through the two correlating Councils. Each Board was to consist in the first place of the leading Teachers of that particular subject of study in the several constituent Schools, and to these the Senate were empowered at their discretion to add external experts—that is, persons not directly associated with the teaching work of the University—to the number of not more than a quarter of the total membership of the Board. It was further specifically provided, for the protection of the interests of the smaller Institutions, that Teachers not attached to any School should be adequately represented on each Board ; and, in addition, as a matter of practical convenience, that any two or more Boards might, and when requested by the Senate should, meet and act in concurrence and render a joint report. Nor was the function of the Boards limited to consideration of and report upon matters specifically referred to them from above ; any Board might itself originate proposals. In so far, therefore, as the actual details of curricula and schemes of examination were concerned, the Boards of Studies were definitely invested with prerogative and far-reaching powers ; and upon them in the first instance—upon each in its own province—would lie the peculiarly delicate and responsible task of suggesting by what means the degrees conferred upon Internal and upon External Students, whatever variations in detail this distinction might entail, should represent as far as possible the same standard of knowledge and attainments—an essential feature of the new constitution upon which the Statutes laid special stress.

The Eight Faculties.

Running roughly parallel with the Boards of Studies, above them in the hierarchy, but not so powerful in that there was no obligation imposed upon the two Councils and the Senate to consult them, were to be the eight Faculties—Theology, Arts, Laws, Music, Medicine, Science, Engineering, and Economics. In this connection, as generally (though not invariably) throughout the Statutes, the term "Faculty" is used to designate, not (as commonly elsewhere) an administrative department of the University, nor even the whole body of persons engaged in teaching a particular subject or group of cognate subjects, but a judiciously select number of such persons, membership of the relevant Faculty (in certain cases more than one) being conferred either by original nomination by the Commissioners, or by subsequent "appointment" (as contrasted with "recognition") to a Teachership, or, in the case of other Teachers, by individual admission by the Senate. Of these three categories of membership the first and second were definite ; the conditions of admission under the third were deliberately left to the discretion of the Senate, the only condition imposed by the Statutes being that "as far as possible all sections of Teachers" should be represented. By one of their Regulations the Commissioners nominated 8 persons to be the first members of the Faculty of Theology, 31 of that of Arts, 10 of that of Music, 162 of that of Medicine, 50 of that of Science, 13 of that of Engineering, and 10 of that of Economics. For the constitution of these original nuclei the Commissioners appear to have confined their selections to the heads of departments and important sub-departments at the Schools and Institutions severally concerned, leaving it to the Senate, who would be able to act upon more immediate knowledge, to strengthen and maintain them in accordance with the successive conditions and circumstances of each case and the general development of the University at large. What might appear to be the disproportionate size of the Faculty of Medicine was of course due to the coincident facts that it was concerned with no less than twelve original Schools and that there are a considerable number of separate subjects in the complete medical curriculum. The Faculty next largest in number of Schools was that of Theology, with seven ; but these were in nearly every case small in respect of both staff and studentry, and the curriculum for degrees is less extensive. In Arts (with four original Schools) and Science (with five) the number of subjects is much larger ; smaller, but still considerable, in Engineering (with three Schools) and in Economics (mainly but not exclusively centred at one) ; while Music, as a single subject complete in itself, formed no part of the scope of any of the Schools but was taught at three Institutions. It will be observed that the Faculty of Laws, specified in the Statutes as one of the original eight, was not at that time brought into actual existence. As they pointed out in a Report accompanying their Statutes, the Commissioners had hoped, in view of the fact that within the British Empire almost every civilised system of law was to be found in active operation, and of the consequent special value to numerous British public officials of a philosophical study of Jurisprudence, to complete their general scheme by establishing such a Faculty together with, and on principles similar to those applied to, the other seven. But the four Inns of Court declined either to become Schools or to recommend persons for recognition as original Teachers ; and "to their great regret" the Commissioners declared that they had not been able "at present" to constitute any "effective Faculty of Laws." This failure of their efforts was, they added, the more lamentable because the University of London was "honourably distinguished by being the first University in this country which conferred degrees in Laws after and as the result of adequate examinations," and at the date of their Report had on its Register about 500 Bachelors of Laws and 70 Doctors of Laws. But in face of the refusal of all co-operation by the four Inns of Court they felt that they must leave this deplorable gap in the fabric of the reformed University, and could do no more than recognise a few individual teachers of various branches of the subject at University College.

By this elaborate machinery of Boards of Studies, Faculties, Recognised and Appointed Teachers, Schools and Institutions, and Academic Council—each body furnished with its definite place and powers in the general scheme—the Commissioners produced what was confidently expected to be an effective solution of the problem that had for many years engaged the anxious attention of those responsible for the conduct of higher education in London. For no feature of the manifold agitation for reform had been more urgently accentuated than the discontent

of the teaching bodies at the complete detachment of the examining authority from themselves, who had thereby in many cases had imposed upon them uncongenial lines of study and limitations of their range of instruction. This interference with the freedom essential to advanced teachers had become intolerable, and it had been generally recognised that there could be no permanent satisfaction until the whole of the academic resources of the metropolis had been harmoniously organised into one authoritative body. A definite and coherent—though necessarily complicated—scheme had at last been brought to the birth; and, as I have said, the prevailing sentiment on the promulgation of the Statutes and Regulations was one of relief. This was, however, in certain cases shadowed by apprehension—of two kinds. On the one hand, some of those who up to that date had won or who hoped in the future to win their degrees by private study or from provincial or colonial Colleges feared that their status might suffer from the establishment of a teaching University in the metropolis. On the other, there were among the governing bodies and staffs of the Colleges and Institutions which were henceforth to form integrally component parts of the re-organised University some who were doubtful how the new apparatus would actually work when set in motion. It would be no small element in the gravity of the task entrusted to the new Senate to remove this apprehension and distrust, so that the new machine might be worked to the utmost of the powers and goodwill of all concerned for the furtherance of the purposes which they were appointed to execute.

The New Senate.

The body upon whom in the last resort this prodigious burden was laid, inheriting from its predecessor the title of Senate, was to consist of 56 persons:—the Chancellor and the Chairman of Convocation, both elected by Convocation; four persons appointed by the Crown; 16 by Convocation[6]; two by the Royal College of Physicians; two by the Royal College of Surgeons; two by University College; two by King's College; one by each of the four Inns of Court; two by the Law Society; one by the Corporation of the City; two by the County Council; one by the City and Guilds of London Institute; and 16 by the Faculties.[7] It will be observed that this constitution, which in its main features was settled in advance by the Act by which the Commissioners were appointed, was designed to secure, as far as was practicable within the limit of number prescribed, equitable representation for all classes and categories concerned—for corporations and professions, for graduates and teachers, for every main branch of University study, for Internal and External interests.

Such was the composition of the "supreme Governing and Executive Body" of the reconstructed University, which, while inheriting the high and honourable traditions of its earlier history, was in future to occupy a larger sphere and to exercise more extensive functions. It was no longer to be content with examining and setting its hall-mark upon men and women who had been prepared for its tests by other agencies, independent alike of itself and of one-another. To this was henceforth to be added the promotion of research and the advancement of science and learning in the several departments of activity that fell within its purview, and the organisation, improvement, extension, and control of higher education throughout the area specially committed to its charge.

(To be concluded.)

[6] Six of these were to be chosen by the graduates in Arts one to be transferred to the graduates in Divinity as soon as these should number 30), one by those in Laws, one by those in Music, two by those in Medicine and Surgery, and six by those in Science.

[7] Four each by those of Arts and Science, three by that of Medicine, and one each by those of Theology, Laws (when instituted, and meanwhile by the Crown), Music, Engineering, and Economics.

MENTAL DISORDER AND DEFICIENCY.

WORK OF THE BOARD OF CONTROL IN 1926.

THE most important event for the Board of Control in Lunacy and Mental Deficiency last year was its appearance before the Royal Commission, the main provisions of which were summarised in THE LANCET, 1926, ii., 239. The Report[1] for 1926 contains an account of the evidence which was given by the Board and of the extent to which the Commission subsequently gave effect to their recommendations. The Board, for example, recommended in dealing with the "non-volitional" case that the patient should be received without certification, on the recommendation of two medical practitioners, into any approved institution or single care. The conditions proposed were that the Board should be notified and given power of inspection, and that the patient should be allowed to leave on 72 hours' notice if he recovered volition. After six months the treatment could be continued for another six months on the recommendation of two independent physicians. This procedure closely follows that at present in vogue in Scotland. The Commission were unable to recommend the elimination of a judicial authority, although they strongly sympathised with the views of the Board.

Mental Disorder.

The number of notified insane persons under care in England and Wales on Jan. 1st, 1927, was 136,626, an increase of 2743 on the preceding year's total. This increase is greater by 161 than the average increase for the last five years, and shows that the yearly toll of insanity is on an ascending curve. There is, in the Board's opinion, no evidence that the incidence of mental disorder is increasing; but the normal growth of the population is making the problem of accommodation an acute one, about which the Commissioners are justly anxious. Apart from ordinary ward space, most mental institutions need admission hospitals, sick wards, wards for excited patients, and laboratories. A slight relief is being afforded by the reopening of the L.C.C.'s Colony at Epsom for 429 patients, by the provision of a 269-bed annexe for females at Springfield Hospital, Malden, and by the opening of the new home and training-school for nurses at Barming Heath, whereby 160 beds will be released. This expansion does not, however, cover the growth in the number of patients, and, in the words of the Board, "the County and Borough Mental Hospitals must be regarded as full." If serious overcrowding is to be avoided, they say, energetic measures are necessary. It appears from the Report that Poor-law accommodation for harmless patients is not being used nearly as fully as it might be, but that even if it were the special types of accommodation mentioned above would still be necessary.

The recovery-rate for County Hospitals was 30·3 per cent. and for Borough Hospitals 38·5. The combined death-rate was 7·3 per cent.; the fall has been continuous since 1922. The post-mortem rate was 68·1 per cent., varying from 100 per cent. at Cumberland to 7 per cent. at Middlesbrough and 9 per cent. at Croydon. Enteric fever occurred in 33 hospitals as against 35 in 1925, showing the usual predilection for females. The Board recommend prophylactic inoculation in hospitals where the disease occurs every year, as an adjuvant always to hygienic measures and laboratory facilities. 515 cases of dysentery—more than double the 1925 total—were notified, with, however, only 98 deaths against 79. The rise is partly, but not entirely, due to greater accuracy in diagnosis. Dysentery attacks the staffs much less than typhoid. The incidence-rate of tuberculosis fell from 11·8 per cent. to 9·7 per cent. during last year, and the death-

[1] H. M. Stationery Office. Part I., 2*s.*; Part II., 9*s.*

rate from 8·6 per 1000 to 8·0. The death-rate from pulmonary tuberculosis was 6·6 per cent., the lowest yet recorded. The number of patients who committed suicide was 55, but only 27 of these were in residence. This is a decrease of one in the residents and an increase of three only in those on leave or trial—a noteworthy result considering the large numbers now allowed these privileges. Two occurred at branch houses, a circumstance on which the Board comment unfavourably. Voluntary boarders have increased by about 8 per cent. throughout the country. The Board report very favourably on the standard maintained by the licensed houses.

Mental Deficiency.

The shortage of accommodation for mental defectives, upon which the Board reported so gravely last year, has been still further accentuated. No new institutions have been provided, and the total increase is 226 beds only. The total number of beds available is 5301, against the estimated defective population of 40,000 to 45,000. The Board are still urgently inviting schemes for providing extra room. The reluctance of local authorities to meet the necessities of the situation is, in the Board's view, not due so much to ignorance or to unwillingness to perform their duty, as to the heaviness of the rates already levied. It is not sufficiently recognised that the community has to pay for the support of its feeble-minded whether they are housed in special institutions or allowed to remain at large. The necessity for immediate action was equally well recognised by the Departmental Committee on the Treatment of Young Offenders, which sat early this year and whose report the Board quote. Five of the seven local authorities who were reported last year to have acquired estates have now submitted schemes, and five more bought estates last year, including Newcastle-on-Tyne, whose purchase included a large and easily adaptable building which will, it is hoped, soon be available for some 300 patients. The Board recommend all local authorities whose population is not large enough to need a full-sized colony to combine with their neighbours without delay. If all the existing schemes mature in two or three years the situation will be substantially better, but they are only local measures, and many authorities will still be without accommodation even for the most urgent cases. The Board repeat their advocacy of the colony system, describing the organisation at Monyhull, Birmingham.

Marriage and Sterilisation of Defectives.

The Board are naturally uncompromising in their condemnation of marriage among mentally deficient persons, and advise the publication by local authorities of the facts concerning this abuse, so as to prepare the way for legislation. That public opinion is still ignorant of the necessity for preventing defectives from marrying is shown by the many reports from local authorities of the refusal by justices of petitions for detention in order to allow pregnant or even non-pregnant defective girls to marry. The Report emphasises the need for selecting more carefully the persons to whom marriageable defectives are licensed, and points out the danger of placing defectives under the guardianship of their parents, who too often either deny the defect or deliberately encourage marriage or conceal intimacy. The Board have not altered their views on sterilisation, and reiterate their opinion, published last year, that this measure would not diminish the need for colonies. The idea that many patients are only segregated to prevent them from propagating is considered highly erroneous, and the Report quotes a minute from Dr. Douglas Turner, of the Royal Eastern Counties Institution, who supports by convincing arguments the view that the proportion of defectives whom sterilisation would release from supervision is about 3 per cent. The Report does not touch on the important question of venereal disease, which would be propagated quite as freely, if not more so, by sterilised than by unsterilised defectives.

Statistics.

Improved ascertainment is responsible for much of the increase in the known defective population, both because diagnostic methods have become more accurate and because authorities have become more alive to the importance of the work. The number on record at the end of 1926 was 60,234, a proportion of 1·59 per 1000; this is an increase of 4754 during the year. Of these only 22,739 are under care. Reporting authorities fall into two distinct groups: those who report 2 per 1000 or over, and those who report less than 1 per 1000. The number of the latter group has decreased from 56 in 1925 to 30 in 1926, and only 11 bodies report under 0·45 per 1000. These results point, as the Board maintain, to the advisability of renewed endeavour on the part of some local authorities, and particularly to the realisation by certain local education authorities that their own failure to notify makes a fatal gap in the community's scheme for the continuous care of the mentally defective.

Sixteen new occupation and industrial centres were opened during last year, and 109 more patients attended. The Board call for every effort to increase the average attendances, which are only 63·8 per cent. of the registered numbers, and to raise the numbers at the smaller centres. It is doubtful, they say, whether it is worth spending public money on a centre with an average attendance below six. Only seven out of 74 centres are reported as unsatisfactory, and in six of these the supervisors have no special qualifications.

874 patients were under guardianship at the beginning of this year, 273 more than at the beginning of 1926. This increase is probably due to the new powers given by the Amendment Act of 1925, and the Board request local authorities to exercise the greatest care in choosing guardians, a duty not always satisfactorily performed.

The percentage of successful discharges of high-grade defectives was 14, as against 7, 11, and 12 in the three preceding years. The number of idiots and imbeciles in mental hospitals is still 150. Apart from the inconvenience they cause there, they miss the training most of them are capable of receiving.

After an appreciation of the work done by the Central Association for Mental Welfare during the year, the Report gives the number of admissions to county and borough mental hospitals for encephalitis lethargica as 135, and to mental deficiency institutions as 70. The total since 1918 is now 384.

NATIONAL HEALTH INSURANCE MEDICAL BENEFIT.

NEW PROCEDURE AS TO CHANGE OF DOCTOR.

AN alteration of the terms of service of insurance practitioners has been notified by the Ministry of Health to the clerks of Insurance Committees who will advise practitioners in the following form:—

Under the powers conferred on them by Clause 2 of Part I. of the First Schedule to the National Health Insurance Medical Benefit Consolidated Regulations, 1924, the Insurance Committee have decided, with the Minister's approval, and with effect from Oct. 1st next, to alter accordingly the terms of service of practitioners who are under agreement with them, and notice is hereby given to you that on and after this date the provisions of these regulations will form part of the terms and conditions on which insurance practice will be carried on in the Insurance Committee's area, and in so far as they affect the rights and obligations of insurance practitioners shall be deemed to form part of the practitioner's terms of service.

As from Oct. 1st, 1927, an insured person whose name is already included in the list of an insurance practitioner in the district in which he is residing, and who desires to apply for acceptance by another

practitioner, may either transfer with the consent of both practitioners, notified by their signatures on the appropriate space of the medical card, or with the authorisation of the Insurance Committee, which will be given as a matter of right but with effect only after the expiry of 14 days after application. Under the latter alternative the insured person must send to the Insurance Committee his medical card with a letter stating his intention to transfer, and the medical card will be returned to him with a slip attached authorising transfer after the appropriate date. This slip should be completed by the insured person and signed and dated by the practitioner accepting him for treatment. The card with the slip attached should then be forwarded by the practitioner to the Committee. Acceptance cannot be registered until the date named, and in the meantime the insured person should continue to obtain treatment from the former practitioner.

A new form of medical card is being prepared which will contain instructions as to the new procedure, but it is not possible, for reasons of economy, to make a general issue of new cards to all insured persons. Cases will therefore occur in which insured persons in possession of old medical cards will apply as at present for acceptance by a new practitioner. In such cases you are requested to be good enough to inform the insured person that, as he is already on the list of another practitioner in the district, it is necessary that he should obtain either the written consent of the latter to the transfer or the authorisation of the Insurance Committee. The practitioner on whose list the insured person is included can give his consent in cases where old cards are presented, by writing across Part A the words " I consent to transfer " and appending his signature and the date. The insured person and the new practitioner should then complete Part B. The new style of medical card will provide a space Part C to be completed by both practitioners, in cases where transfer is made by consent.

To assist the Committee in bringing the change of procedure to the notice of insured persons, I am to request you to be good enough to exhibit the accompanying poster containing the new instructions in a prominent place in your waiting-room. Further copies of the poster can be obtained on application to the Committee.

I am to add that the new regulations do not in any way affect the existing procedure regarding the acceptance of persons not already on the list of another practitioner practising in your district, of temporary residents, or of persons on the lists of approved institutions.

Text of the New Regulations.

16.—(1) An insured person, other than a member of an institution or a person who is permitted or required to make his own arrangements for obtaining treatment, may at any time make application for acceptance by an insurance practitioner notwithstanding that he is at the date of application included in the list of another practitioner, and if accepted shall forthwith be entitled to obtain treatment from the practitioner to whom application has been made.

Provided that if the insured person is at the date of the application included in the list of another practitioner and has not removed permanently or temporarily outside the district within which the practitioner has undertaken to provide treatment the application of such insured person shall only be accepted if either :—

(*a*) both the practitioner in whose list the insured person is included and the practitioner to whom he applies for acceptance consent to the transfer, and such consent is signified by the practitioners in accordance with the instructions printed on the medical card ; or

(*b*) the insured person has forwarded to the Committee his medical card together with a notice of his desire to transfer and not less than fourteen days after such notice is received by the Committee the insured person and the practitioner to whose list he proposes to transfer have signed a statement in a form approved by the Minister and issued by the Committee indicating the agreement of the insured person and the practitioner that the transfer should be effected, which form shall be attached to the medical card by the Committee.

Poster to Exhibit in Waiting-room.

The poster (referred to above) regarding change of doctor is couched in the following terms :—

After Oct. 1st, 1927, if you wish to change your doctors and if you are still living in the district in which your present doctor practises you should proceed as follows :—

Either (1) You may transfer with the consent of your present doctor and of the new doctor ; in that case you must take your medical card to be signed by both doctors, and leave it with the doctor to whom you wish to transfer.

Or (2) You may send your medical card to the Insurance Committee with a letter stating that you wish to change your doctor. It is not necessary to give the reasons why you wish to change. The card will then be returned to you with instructions as to when and how you may transfer. Until you have complied with the instructions sent to you regarding transfer, you should continue to obtain treatment from your present doctor.

If you have not chosen a doctor, or if you have removed either temporarily or permanently from the district in which your present doctor practises, it is not necessary for you to write to the Committee. All you need do is to take your medical card to any insurance doctor you wish to choose. If you are not in possession of a medical card you should complete a form of application (Form Med. 50) to be obtained at the nearest post office and send it to the Committee.

Postage must be prepaid on all letters to the Insurance Committee.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

The Progress of Housing.

IN 1928 the question of housing subsidies of every sort falls to be reconsidered, Scotland having obtained an extra year, since, for sufficient reasons, housing progress was not equal to that of England. But at last Scotland seems to have got into her stride, and the large programme projected by the Scottish Housing Commission is in a fair way to be realised. During 1927 the various housing schemes, including those for slum clearance, have begun to bite into the mass of arrears. It is noticeable that in the course of eight years Scotland has largely ceased to be a stone-house country, and has largely become a " brick-and-harl " or cement-block country, although Aberdeen has stuck almost entirely to granite and no Aberdonian would wish it otherwise—at least, in the main areas of the city. But on its fringes and particularly in Deeside, which for seven miles on the north is thickly peopled with villas, " brick-and-harl " or cement-block is making an impression. Elsewhere in Scotland brick and cement can still undersell stone, in spite of the innumerable quarries, and what Carlyle and his mason father would have said of this decline of the mason's craft can be guessed from the Latter-Day Pamphlets. But Carlyle could not have failed to perceive that the country has many thousand more houses than it boasted ten years ago, when the Scottish Housing Commission reported in a document that was not shelved.

The monthly returns for 1927 show that the number of houses finished has not once fallen below 1000 per month, and the average approaches 1550. If this rate is maintained for the next five months, the year will have the handsome record of 18,500 houses, and to these may be added 2500 steel houses erected under the direct control of the Scottish Board of Health. If we total the houses finished, those now building, and those already tendered for (including subsidised " private enterprise " houses), we get a number approaching 115,000 houses, not including the many structures erected without subsidy.

The One-room House.

The lessons of Dr. J. Burn Russell's famous lecture or sermon on " Life in One Room," which prompted a cardinal chapter in the Report of the Housing Commission, is brought to memory by Dr. A. S. M. Macgregor, the present medical officer of health for Glasgow, in his annual report. For this includes a special inquiry by Dr. J. A. Wilson on the age-factor and housing-factor in the incidence of pulmonary

tuberculosis in the east end of Glasgow. Dr. Wilson finds that a marked and rapid fall has taken place in the extent to which adults over 25 years of age are affected. He notes that in the case of males an increase in the size of house is associated with a diminished incidence of the disease, most marked in the young adult and at ages from 46–65 years. As between the one-room and the two-apartment house, the two-apartment house shows a greater incidence at ages 11–15 and 21–25. At all other ages, the one-room house has the greater incidence. In the case of females, at all ages, except 6–10 years and over 66 years, the improvement in the housing status is represented by a marked decline in incidence. If we take the one- and two-apartment houses as against the three-apartment, the decline in incidence is very strikingly shown in the three-apartment house. To those familiar with the area investigated, the "functional" difference between the one-apartment and two-apartment house is largely nominal; but, even so, the two-apartment house scores. This investigation emphatically confirms the Royal Commission's chapter, in which the many Glasgow investigations were fully recognised. The disconcerting fact remains that in this area the one-apartment houses rise to 26 per cent. of the whole, the two-apartment houses 53 per cent., the three-apartment 16 per cent., while only 5 per cent. of the houses are of four or more rooms. Thus 79 per cent. of the houses are of one or two apartments. Dr. Wilson comments: "These graphs, it is suggested, demonstrate in a forceful way the important bearing of housing on the incidence of this disease, the larger houses being associated with a diminished incidence in most age-groups. Much has been written in condemnation of the one-apartment house, and if further condemnation were needed the material is to be found in these results. But it has to be remembered that the house, in an industrial area, is only a reflex of the economic condition of the inhabitants, so that any scheme of prevention must deal with the problem from both angles." This fresh investigation deserves minute study.

The McKelvie Isolation Hospital, Oban.

On the occasion of the opening on Sept. 8th of the new pavilion attached to this hospital, Sir Leslie Mackenzie, as a member of the Scottish Board of Health, delivered an address in which he testified to the great generosity of the original founder, the late Dr. R. B. McKelvie, and the maintenance of civic spirit shown by Mr. Macpherson and his sister in providing funds for the extension and equipment of the institution. He reminded his audience that Dr. McKelvie's first gift of £1000 was later increased to £1500 when the estimate of the cost of erecting the fever block had to be revised. During the lapse of 30 years new needs have been revealed, and these are being met by the recent extension, so that Sir Leslie Mackenzie was able to congratulate the corporation of Oban on now possessing, with its recent addition, an effective modern institution of 42 beds. Sir Leslie Mackenzie closed his address by reviewing the situation brought about, especially in urban communities, by the compulsory notification of infectious disease, made compulsory in Scotland just after the foundation of the McKelvie Isolation Hospital. He said:—

"It is 30 years since compulsory notification was made universal in Scotland. This was done through the Public Health Act of 1897. The ordinary and well-known infections like typhoid fever, typhus, small-pox, scarlet, diphtheria, erysipelas, puerperal fever, and some others were subjected to compulsory notification. Since that time many other diseases have been added, and the list of notifiables now approaches 30. Some have come into the list at one date and some at another. Notification applies perfectly to some and imperfectly to others. But look at the broad fact. In the 30 years since 1897, the medical men have notified 1,450,818. Of these, 770,000 have been removed to hospitals under the management or control of the local authorities for public health. These vast numbers will give some idea of the problem that constantly faces the Public Health Local Authorities of Scotland, which at present number over 300. Take one or two special diseases. In these 30 years, there were notified 137,705 cases of pulmonary tuberculosis. Of these, 66,122 were removed to hospitals or sanatoria. But notification has applied to tuberculosis only since the year 1906, when notification was voluntary, and compulsory since about the year 1910. The numbers notified rise as high as 9000 a year, though recently there has been a falling off until in 1926 the number notified was 6669. Non-pulmonary tuberculosis has been notifiable since 1914. The total notified in those 13 years has been 60,454. Of these 17,232 were removed to hospital. The totals for pulmonary and non-pulmonary tuberculosis were: 198,159 cases notified, 83,354 cases removed. The disease is going down, but with those massed figures before us we can realise how much there is still to do. Take, now, typhoid fever. In the 30 years there were notified nearly 63,000 cases. But whereas in the early years the notifications ran up as high as 5600, the notifications in the last ten years have never, in a single year, exceeded 800, and in some years the notifications have fallen below 400. Obviously, typhoid fever is now under effective control. As to typhus fever, even in 1892 it was comparatively rare. Now we have had at least one year in the 30 without a single case, and one year the notifications were as low as two, although the disease crops up in little outbreaks unexpectedly still. As to small-pox, it is enough to say that in 1926 only one case of small-pox was notified. This year the record will not be so good, but small-pox is also under effective control. Of scarlet fever, the numbers notified in the 30 years approached 530,000. The disease is still very widely prevalent, but, thanks to improved hospital accommodation and improved nursing, the death-rate has remained low. Of diphtheria, the total numbers in 30 years were about 207,000. It is still too prevalent, but the new methods of dealing with scarlet fever and diphtheria are already beginning to have an effect, and as the generation goes on the effects will be still more manifest. . . . In the year 1919 acute primary pneumonia and acute influenzal pneumonia were subjected to compulsory notification. In the eight years since then there have been notified nearly 84,000 cases. Pneumonia, as has been shown in detail in the report of the Scottish Board of Health for 1925 and again in 1926, is one of the most dangerous and fatal and prevalent of all the diseases in Scotland. The large local authorities have treated many thousands of cases, and although it is yet too soon to draw conclusions, there is little doubt that the terrible death-rate from these forms of lung disease will gradually yield to the better management and nursing possible in well-equipped hospitals."

The new extension has been made especially to meet the problems presented under Maternity Service and Child Welfare schemes.

UNITED STATES OF AMERICA.

(BY AN OCCASIONAL CORRESPONDENT.)

The Negro Population.

Dr. Louis L. Dublin, of the New York Metropolitan Life Insurance Company, has recently compiled some statistics about the negro in the United States, and publishes them, together with his conclusions, in the *American Mercury* for September. The first figures relating to the coloured population were, he says, collected in 1790, when there were 757,208 negroes in the country. In 1920 the number had increased to 10,463,131, but whereas in 1790 the negroes amounted to 19·3 per cent. of the total population, in 1920 they amounted to only 9·9 per cent. The health conditions of the negro in America have improved almost pari passu with those of the white man. Dr. Dublin's figures show that the expectation of negro males at 50 is only a year less than that of white males, and of negro females only a little over two years less. According to the books of the Metropolitan Life Insurance Company, in 16 years the mortality record of the coloured policyholders showed a decline of 16·3 per cent. Marked improvement has been exhibited with regard to deaths from tuberculosis, pneumonia, and communicable diseases, though certain degenerative diseases continue to be very prevalent. In the cities and more especially in the northern cities, to which the negroes have emigrated, there has been generally an increase in the death-rate and a decrease of the birth-rate, and it is only in the rural districts of the south that there is now an appreciable excess of births over deaths. Dr. Dublin estimates that the negro population in A.D. 2000 will be about 14,500,000

but as the total population of the United States at that date should have increased to 185,000,000 or thereabouts the coloured people will constitute a little less than 8 per cent. of the total.

Industrial Accidents.

The American Engineering Council has published a report on its national safety and production survey, stating that industry must free itself from unnecessary waste by using modern safety methods to decrease accidents. The rate of production per man-hour, for the industrial groups studied, was 14·4 per cent. higher in 1925 than in 1922, and the rate of accident frequency per man-hour was 10·4 per cent. lower in 1925 than in 1922. The rate of accident severity per man-hour, however, was 2·5 per cent. higher in 1925 than in 1922. Among other recommendations made, the report suggests that the same managing direction and control be given to decreasing industrial accidents as is given to increasing production, and that the executives of plants which have high accident-frequency and accident-severity rates should initiate, direct, and control ways and means of reducing these rates at least to the level of other plants in their industry.

Increase of Diphtheria in New York.

The Department of Health for New York State has issued a report in which it is stated that diphtheria has increased from 69 to 79 cases per 100,000 inhabitants during the first six months of the year. A similar increase has been noted in New York City.

The late Dr. Lewis.

Dr. H. Edwin Lewis, who died on August 6th, was for almost twenty years managing editor of *American Medicine*. Born at Providence, Rhode Island, in 1875, he graduated from the University of Vermont Medical Department in 1897, and went to McGill University, Montreal, for post-graduate study. After practising for some years in Burlington, specialising in tuberculosis, and serving for several years on the Vermont State Tuberculosis Commission, he came in 1906 to New York City, where he combined medical practice with the editorship of the *International Journal of Surgery*. In 1908 he was made managing editor of *American Medicine*—a journal founded and edited by the late Dr. George M. Gould. A talented writer, Dr. Lewis was also an excellent business man, and he was for a time President of the American Medical Editors' Association. Throughout his life he laboured under the burden of ill-health and physical disabilities, and the fact that he succeeded in spite of this handicap is a proof of courage and perseverance.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED SEPT. 10TH, 1927.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 146 (last week 111); scarlet fever, 1617; diphtheria, 997; enteric fever, 107; pneumonia, 478; puerperal fever, 32; puerperal pyrexia, 99; cerebro-spinal fever, 10; acute poliomyelitis, 38; acute polio-encephalitis, 3; encephalitis lethargica, 30; continued fever, 1; dysentery, 8; and ophthalmia neonatorum, 102. No case of cholera, plague, or typhus fever was notified during the week.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 4 (1) from enteric fever, 16 (2) from measles, 6 (0) from scarlet fever, 14 (4) from whooping-cough, 24 (5) from diphtheria, 78 (10) from diarrhœa and enteritis under two years, and 21 (5) from influenza. The figures in parentheses are those for London itself.

With regard to the death from small-pox reported in the Registrar-General's weekly return last week (No. 35) we understand that the death referred to was that of a man aged 77, who was admitted to the Doncaster Small-pox Hospital on July 12th and discharged cured on August 20th. Death took place on August 28th, the cause of death being stated thus on the certificate: I. (*a*) toxæmia; (*b*) gangrene of right foot; (*c*) small-pox.

Obituary.

SIDNEY RAWSON WILSON, M.B., B.S. LOND., M.SC. MANCH., F.R.C.S. EDIN.

WE have already announced the death of Dr. S. R. Wilson, senior anæsthetist to the Royal Infirmary, which occurred at his home in Manchester on Sept. 12th. Dr. Wilson had long been investigating the proportion of gas and oxygen which gives the best results, and the physiological problem whether the anæsthetic properties of gases are due to limitation of oxygen or to a special action on nerve-cells. At the time of his death he was planning a crucial experiment on this point. Though he did research work at the hospital he was also accustomed, in spite of warnings, to make observations on himself, and his death seems to have been due to premature exhaustion of an oxygen cylinder during such an experiment.

"S. R.," as he was familiarly called, came of a family long connected with Manchester. His grandfather, George Wilson, took a leading part in the Free Trade movement of the middle of the nineteenth century, and was a strong supporter of Joseph Jordan, one of the founders of the Manchester Medical School—a fact of which the younger Wilson was very proud. His father is Dr. A. C. J. Wilson, of Penistone, and S. R. Wilson was born in that town 45 years ago. On going to Manchester University in 1900 he soon showed his qualities, and carried off most of the prizes of his time. Even as a student he had an extensive practice in coaching, taking in hand fellow students in subjects he had himself just passed or in the very subjects he was studying. He even coached in subjects which were not directly in his own line, learning up the work shortly before he taught it. By his clearness of comprehension and his simple way of putting things he made medicine more easy for his fellow students than could the acknowledged teachers. Careless in his dress, and outspoken in his criticism, he was somewhat of a free lance in his student days. Soon after qualification, with a long series of academic triumphs to his name, he took up anæsthetics and in his specialty worked up to a leading position in Manchester, becoming senior anæsthetist to the Royal Infirmary. He was especially interested in the use of nitrous oxide, and in recent years in ethylene, but during the last year of his life he spent much time in studying some unexpected deaths following the use, as he claimed, of impure ether.[1] He thought deeply, and his brain was always engaged on the problems which anæsthesia presents. He was also a forceful teacher, and large numbers of his former pupils, in mourning his loss, will remember how much they owe to him. In the University of Manchester he held the post of lecturer in applied physiology, and he was deeply interested in the history of his old medical school and in any problems that affected its welfare. Hypnotism and psychology were favourite studies, and he applied hypnotism for anæsthesia to the small extent that opportunity provided. In 1922, with Mr. A. H. Southam, he published a paper on the cancer of the scrotum which occurs in mule-spinners. This subject he had discussed many years previously with the late Mr. George A. Wright, and had been studying till sufficient material was accumulated.

Personally, he had a sort of rugged charm. Though a fighter and by no means fine spoken, he was always sympathetic and always ready to help. He had a distinct wit, and when in vein he could be intensely amusing. Those who attended his lectures on the history of anæsthetics came away thinking them the most interesting and the most clever they had heard.

Dr. Wilson married the daughter of Mr. John Mitchell, who survives him with a son and a daughter. The funeral took place on Sept. 16th at the Manchester Southern Cemetery, after a largely attended memorial service at St. Chrysostom's, Victoria Park.

[1] THE LANCET, 1927, i., 1117; and ii., 88.

CHARLES EDWARD PAGET, M.R.C.S., D.P.H.

Mr. C. E. Paget, whose death occurred on Sept. 11th, was for 28 years medical officer of health for the County of Northampton, and wrote a number of books on hygiene. Born in 1858, he was the son of Sir George Paget, F.R.S., Regius Professor of Physic in the University of Cambridge, and was educated at Charterhouse and St. Bartholomew's Hospital. At one time he acted as secretary to his uncle, Sir James Paget, F.R.S., but soon after qualifying in 1882 he decided to devote himself to public health work and was appointed medical officer of the Westmorland combined sanitary districts. The duties of this office he combined with hon. secretaryship of the Epidemiological Society for seven years, but after succeeding Sir John (then Dr.) Tatham as medical officer of health for Salford in 1889, he was obliged to resign this extra work, though he later became a member of the Society's Council. While at Salford Mr. Paget —as he preferred to be called—was elected president of the North-Western branch of the Society of Medical Officers of Health, and was lecturer in public health at Owens College and examiner in the Victoria University of Manchester. Already he had published two handbooks on the subject, "Healthy Schools" (1884) and "The Construction of School Sanatoria" (1887), and had become widely known as a capable and thoughtful worker when in 1897 he was appointed the first medical officer of health and school medical officer for Northamptonshire. Here there was a clear field for his energies, though he had to contend with the opposition of those who regarded a county medical officer as an unnecessary luxury. His manner and methods were well calculated to overcome such obstacles. Modest to a degree, he soon became popular among all classes, whilst his enthusiasm for improvement did not narrow his outlook on the problems to be faced. He was especially interested, perhaps, in the welfare of infants and children, and it is a tribute to his efforts that the infant mortality of the county decreased during his term of office from 159 to 52 per 1000 births. During the same period the general death-rate fell from 15·57 to 11·37. Mr. Paget's annual reports were always lucid, and he wrote a number of useful reports on special subjects, notably fevers, besides editing the lectures of his father, with a memoir. He resigned his appointment last year, and was succeeded by Dr. Meredith Davies. Soon after his retirement he was elected an honorary member of the Association of County Medical Officers of Health, and this recognition of his work, he said at the time, gave him the greatest pleasure of his life.

Mr. Paget married Ethel, daughter of Canon W. H. Brandreth, and she survives him. Their only child, Lieut. G. G. B. Paget, of the Northamptonshire Regiment, was killed in action in 1914.

CHARLES SAMUEL BREWER, O.B.E., L.R.C.P. EDIN.

Dr. C. S. Brewer, who had been in poor health for seven or eight years, died on Sept. 7th at his home in Birkenhead. Most of his life was spent in that neighbourhood, for after studying at the Liverpool School of Medicine he was appointed house surgeon at the Birkenhead Borough Hospital, and soon afterwards took over a practice in the town, where he remained for the rest of his life. His period of active practice was nearly forty years, but was interrupted for a time by the late war, during which Dr. Brewer served as staff-surgeon on H.M.S. *Eaglet*, with the rank of Surgeon Lieut.-Commander, R.N.V.R. He was made an Officer of the Order of the British Empire in recognition of his services. On returning to Birkenhead he resumed the prominent place that he had gained in local affairs, and even after his retirement a few years ago continued to do a great deal to promote infant welfare and other public work. He was a leading Freemason and served for several years on the Birkenhead Town Council. He leaves a widow.

Correspondence.

"Audi alteram partem."

THE LABELLING OF EGGS.

To the Editor of THE LANCET.

SIR,—As a layman who has devoted the major part of his time during the last ten years to the study of eggs, from their dietetic value as a life-giving food, their commercial aspect and their exhibition merits, I should like to endorse and amplify the remarks made by Dr. E. G. Annis in your issue of Sept. 3rd, and previous letters upon this subject.

The intrinsic food value of eggs is not sufficiently known or appreciated by the British public. Until they can obtain new-laid eggs with assurance and confidence that the article purchased is genuinely as represented, so long will the position remain in statu quo—a national scandal. In common justice the consumer has a right to know what he is buying. This obligation has not yet been recognised. The extent to which foreign eggs are being mixed with English is appalling.

Nature ordained that at least one indispensable article of food should be provided for our use safe from the machinations and evil ingenuity of man to adulterate, hence eggs are contained in sealed packets. Yet this very safeguard is utilised as a convenient cloak by the unscrupulous to shelter their deliberate delinquencies. The solution of the problem lies in two directions.

First, legislative assistance is needed—all imported eggs must be marked with their country of origin. It must be enacted that it is illegal to offer for sale bad eggs and stale eggs for new-laid eggs or fresh. Secondly—as producers, men of acumen, acknowledge —there must be a complete reorganisation of marketing and adoption of standard grades. Soiled or dirty eggs must be eliminated. It is easy to see through the objections raised against the marking of imported eggs.

As far as the cost is concerned, the Minister of Agriculture informs us that estimates range from one-seventh of a penny to one penny per dozen; a mere trivial matter in comparison to health, and the cost would fall upon the importer. Poultry keepers do not fear the fair competition of imported eggs, but they do object to the unfair competition produced by mixing and selling these eggs as English new-laid.

I am, Sir, yours, faithfully,

JAMES GATECLIFF.

24, Minnis Bay, Birchington-on-Sea, Sept. 13th, 1927.

MULTIPLE CAVERNOUS ANGIOMATA OF THE SWEAT DUCTS.

To the Editor of THE LANCET.

SIR,—The interesting case recorded by Dr. B. W. Crowhurst Archer in THE LANCET of Sept. 17th (p. 595) recalls numerous descriptions of what may be termed "telangiectasia" of the skin and mucous membranes, whether familial or non-familial, and whether or not accompanied by special tendency to hæmorrhage. I have referred to many such cases in an article entitled Developmental Telangiectatic Hæmorrhage and So-called Telangiectasia.[1] But the case which, in regard to the extensive distribution on the trunk, it seems most to resemble was omitted from my list —namely, the one published under the heading Angiomatosis Miliaris by L. Steiner and H. Voerner.[2] Nevertheless, there are apparently many points of difference between the two cases.

I am, Sir, yours faithfully,

F. PARKES WEBER, M.D.

London, W., Sept. 17th, 1927.

[1] British Journal of Children's Diseases, 1924, xxi., 198.
[2] Deut. Arch. f. Klin. Med., Leipzig, 1909, xcvi., 105.

STIMULANTS OF THE UTERUS.

To the Editor of THE LANCET.

SIR,—In your leading article in THE LANCET for Sept. 10th with this heading there appears to be a certain confusion in the mind of the writer as to the identities of the alkaloids of ergot, ergotamine and ergotoxine.

Although it is clear that the experiments made by the authors, whose work is under review, were carried out with ergotamine in the form of ergotamine tartrate, and that their conclusions are based on the results obtained with this salt, your leader writer appears to consider that the pharmacological similarity between the two alkaloids entitles him, by an analogical process of reasoning, to substitute the word "ergotoxine" for "ergotamine" throughout.

We desire to make it clear that there are fundamental differences between ergotamine and ergotoxine. Ergotamine differs from ergotoxine in its chemical composition. Ergotamine is a crystalline substance, whereas ergotoxine has always been described as being amorphous. Ergotamine yields pure crystalline salts suitable for clinical use, and ergotamine tartrate, under the name of Femergin, has been available in unlimited quantities, and extensively used, for a considerable time. The abundant clinical evidence which proves that ergotamine is a powerful and reliable agent appears to be singularly lacking for any other constituent of ergot.—I am, Sir, yours faithfully,

J. FLINT,
Manager, "Sandoz" Scientific and Research Department.

5, Wigmore-street, London, W. 1, Sept. 15th, 1927.

*** Mr. A. Bourne and Dr. J. H. Burn, when discussing the physiologically active substances in ergot, say (*Journal of Obstetrics and Gynæcology of the British Empire*, XXXIV., No. 2, p. 259): "These are (1) the specific alkaloid of ergot, (2) histamine, (3) tyramine. The specific alkaloid of ergot is known as ergotoxin, in which form it was originally isolated by Barger and Carr, and as ergotamine, a pharmacologically identical and crystalline substance isolated by Stoll." In their summary (p. 267) it is stated: "The specific alkaloid of ergot (ergotamine or ergotoxin) exerts a very prolonged action, and appears to be an ideal agent for use after delivery." The leading article to which the above letter refers was designed not to discuss any particular preparation but, in a general way, the specific alkaloid of ergot.—ED. L.

MEDICAL LITERATURE FOR KENYA COLONY.

To the Editor of THE LANCET.

SIR,—With reference to the letter appearing under the above heading in your number of June 4th last (p. 1205), the Branch Council of the Kenya branch of the British Medical Association desires to express strongly its disagreement with the statement made therein, that the medical practitioners of Kenya would gratefully welcome gifts of fairly up-to-date books on medicine and surgery.

The fact is that the medical department of the colony maintains a medical reference library which is accessible to all doctors in the colony. This contains all the best of the most recent medical publications and takes in the majority of the standard medical and scientific journals published to-day. Furthermore, it is probable that the private libraries of medical men in this colony would compare favourably with those of their professional brethren at home.

While grateful for the suggested vicarious generosity of the President of the Victoria League, my Branch Council fears that the statement that medical practitioners in this colony feel a pressing need for text-books of medicine and surgery may be misconstrued into a reflection on their professional efficiency.

I am, Sir, yours faithfully,

J. B. CLARKE,
President, Kenya Branch, British Medical Association.

Nairobi, August 24th, 1927.

CHARLES CREIGHTON.

To the Editor of THE LANCET.

SIR,—May I express my gratitude to Prof. William Bulloch for his remarkable appreciation of a remarkable man contained in THE LANCET of July 30th. No one who has read that scholarly book "The History of Epidemics in Britain" (not *Great* Britain) or who has had occasion to study Creighton's translation of Hirsch's "Handbook of Geographical and Historical Pathology" can fail to have acquired a feeling of respect and admiration for their author—a feeling which the pathetic story of his life, so vividly portrayed by Prof. Bulloch, serves to intensify.

Dr. Charles Creighton was the last of the great miasmatists, and his passing marks the end of an era which, starting some 2000 years ago, gave us Sydenham and a distinguished band of medical philosophers. It is, however, not possible to account for the attitude of detachment adopted by Creighton towards the discoveries of Pasteur and Koch, but, as Prof. Bulloch hints, it may be that modern epidemiologists, as the result of discarding the spirit as well as the letter of his message, have failed to do full justice either to him or to themselves. "We have thrust," wrote Sir Clifford Allbutt, "ancient myth and symbol too much aside as wholly fanciful; we are discovering now that they are apparitions, luminous mists of truth—the edges and bordering lights growing in form from one incarnation to another."

This view, I take it, represents in graceful literary form the standpoint of Creighton, and it may be that the day is not far distant when it will be recognised that the miasmatic concept does, after all, correspond with something in nature. In the meantime it is pleasing to learn that the anxieties of his latter days were relieved by an unsought civil pension—a gift equally honourable to the donor as to the recipient.

I am, Sir, yours faithfully,

C. A. GILL, Lt.-Col., I.M.S.

Simla, India, Sept. 1st, 1927.

DEATH CERTIFICATION.

To the Editor of THE LANCET.

SIR,—It is clear that the majority of us have by this time experience of the new form of death certification; but it is strange to me that it seems so far to have escaped criticism. Apart from the form of certificate and the suggested procedure descriptive of the mode of death, both susceptible of improvement, there is a pitfall for the ingenuous in the mode of certifying. The certificate is to be delivered personally—or it may be posted—by the certifier to the registrar of the subdistrict in which the death occurred. What does this imply? To the ingenuous privacy. He would suppose that having excluded the family circle he should proceed with complete frankness to describe the mode of death along with its every contributory factor. For example:—

(*a*) Hæmatemesis.
(*b*) Cirrhosis of liver.
(*c*) Chronic alcoholism.

With what result? That an outraged relative may confront him the same evening with a copy obtained from the registrar! I make no comment; but I submit that the fact must be recognised.

And then, as to the registrar—his name? address? hours of attendance? These are not necessarily an easy discovery, for they may entail the assistance of postal, or municipal authorities, or of undertakers or any other informed and obliging people. My own practice, for example, happens to lie in not less than six different boroughs; and it is my duty to ascertain when necessary the address of a registrar in, for all I know, any one of a dozen or perhaps a score of subdistricts. What is to be *done* about such things? It may be possible that some of your correspondents can make suggestions; in any case the matter is susceptible of discussion and I should hope of remedy.

I am, Sir, yours faithfully,

PRACTITIONER.

Sept. 12th, 1927.

ESTABLISHMENT OF BREAST-FEEDING IN A BABY SIX WEEKS OLD.

To the Editor of THE LANCET.

SIR,—Since the Chelsea Mothers' Home was opened two years ago some very encouraging results have been obtained, and we have become accustomed to see breast-feeding re-established after a considerable interval. The following recent case was, however, so unusual that it seems worth recording.

Baby D. S. was born on July 16th, 1927; the birth weight was reputed to have been 12 lb. The child was put to the breast in the usual way, but no milk appeared in the mother's breasts by the third day. The midwife then stated that further efforts to suckle the child would be useless; on her advice the child was removed entirely from the breast and artificially fed. Condensed milk, various dried milks, and a proprietary food were tried in turn. Under this régime the child lost weight.

The mother and child were admitted to the Chelsea Mothers' Home on August 25th. Baby D. S., then six weeks old, weighed 10 lb.—i.e., 2 lb. less than the birth weight. The infant was put to the breast three-hourly, and given a modified dried milk mixture as supplementary feeding to bring the total food up to 20 oz. per diem. On the first day the child sucked only ⅜ oz.; a further ¼ oz. was expressed from the breast, making a total of ⅝ oz. of breast-milk. On the second day the amounts respectively were ½ oz. and ½ oz.; and on the third day the total breast-milk was 2½ oz. At the end of a week the amount of breast-milk had risen to 10⅝ oz. per diem. On the twelfth day this figure had risen to 21½ oz., and on the following day mother and child were discharged, the infant being then fully breast-fed and weighing 10 lb. 9½ oz.

This surprising result was attributable to the excellent management of the case by the matron, and to the faith of the mother, who quite expected that breast-feeding would be fully established in four days.—I am, Sir, yours faithfully,

NORAH D. PINKERTON, M.B., B.S. Lond.,
Medical Officer, Chelsea Health Society.

Sept. 20th, 1927.

THE TREATMENT OF EPILEPSY.

To the Editor of THE LANCET.

SIR,—It seemed to me a pity that your comprehensive article on epilepsy did not go still further and point out how lacking are the facilities for treating case of psychogenic origin. The fact that ordinarily the general hospitals are content to act as stepping-stones in the course of the epileptic towards the workhouse makes adequate treatment often impossible. If they had psychotherapy departments, working in connexion with occupation or handicraft centres, much good might be done. The doctors and parents would know where to send these cases for early treatment, which, in the majority of instances, is more than half the battle. The epileptic colony, of course, is the ideal, but I am afraid at present it does not come within the range of practical politics.

I am, Sir, yours faithfully,

Plymouth, Sept. 20th, 1927. E. L. FOX, M.D.

ISOLATION WARDS AT LAMBETH HOSPITAL.—The lack of isolation wards at the Lambeth Hospital has again been discussed by the Lambeth Board of Guardians following the receipt of a letter from a coroner alleging delay in the removal of a diphtheria patient and who died while being transferred to the South-Western Fever Hospital. The Ministry of Health wrote expressing regret that the guardians should think of postponing, even for six months, the consideration of providing isolation wards, and a member of the board gave notice that he would move a resolution on the subject at the next meeting. The delay in securing the removal of the patient is stated to have been due to a misunderstanding on the part of the telephone operator who did not appreciate the urgency of the call.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. J. S. Austin is appointed to the Royal Hospital at Bermuda.

Surg. Lt. G. W. Garde to *Vivid*, for R.N. Hospl., Plymouth.

ROYAL ARMY MEDICAL CORPS.

Maj.-Gen. Sir M. W. O'Keeffe, K.C.M.G., C.B., retd. pay, late R.A.M.C., is apptd. Col. Comdt., vice Lt.-Gen. Sir A. Keogh, G.C.B., G.C.V.O., C.H., retd. pay, late R.A.M.C.

Capt. L. M. Rowlette to be Maj. (Prov.).

ARMY DENTAL CORPS.

Temp. Lt. D. W. N. Squires, Dental Surg., Gen. List, to be Lt.

TERRITORIAL ARMY.

Lt. W. Morrison, late R.F.A. (Spec. Res.), to be Lt.

ROYAL AIR FORCE.

J. M. Ritchie is granted a short service commission in the rank of Flying Officer for three years on the active list.

Flying Officer A. F. Cook is promoted to the rank of Flight Lieutenant.

Flying Officer M. D. Rawkins is transferred to the Reserve Class D. (ii.).

Wing Comdr. H. W. Scott to No. 21 Group Headquarters, West Drayton, for duty as Senior Medical Officer.

Squadron Leader (Dental) A. K. Macdonald to R.A.F. Depôt, Uxbridge, on appointment to a Temporary Commission.

Flight Lt. E. G. Howell to R.A.F. Depôt, Uxbridge.

Flying Officers G. T. O'Brien and Patrick O'Callaghan to Research Laboratory and Medical Officers' School of Instruction, on appointment to Short Service Commissions.

INDIAN MEDICAL SERVICE.

Lt.-Col. S. R. Christophers, C.I.E., O.B.E., to be Hon. Physician to the King, Ind. Mil. Forces, and to be Bt. Col., vice Col. C. H. Bensley, C.I.E. (retd.).

Maj.-Gen. G. Tate to be Hon. Surg. to the King, Ind. Mil. Forces, vice Maj.-Gen. R. Heard, C.I.E. (retd.).

Lts. to be Capts.: R. Linton, A.Tait, and J. F. Shepherd.

Maj. A. Seddon is transferred to the temp. non-effective list.

J. F. O. Bodman to be Lt.

DEATHS IN THE SERVICES.

Lieut.-Colonel Frederick William Wright, I.M.S. (retd.), D.S.O., who died recently at the age of 77, was born at Norwich, and was the son of Robert John Wright of that city. Educated at Bedford and at Lausanne, he graduated in medicine and surgery at the University of Edinburgh in 1872. He entered the Bengal Medical Service in 1873, and became Surgeon-Lieut.-Colonel in 1893. In the Afghan War of 1878 he was with Lord Roberts in the forced march from Kabul to Kandahar, and was present at the subsequent battle (medal with Kandahar clasp and the bronze star). Later, in 1886–87, he took part in the Burmah operations which added Upper Burmah to the Indian Empire (mentioned in despatches, medal with two clasps and the D.S.O.). He also served with the British contingent of the Expeditionary Force in China to put down the Boxer Rebellion in 1900 (medal), and in the Waziristan Campaign of 1901–02 (medal with clasp). In 1919 he was granted the Indian Army good service pension.

PRESENTATION TO DR. J. H. MARSH.—On Sept. 14th Dr. Marsh, J.P., medical officer of health for Macclesfield, was presented by his fellow practitioners with a corner cupboard and bookcase, one panel of which bears an illuminated inscription which reads as follows: "Presented to Dr. John Hedley Marsh, J.P., by the members and constituents of the County Palatine of Chester Local Medical and Panel Committees in recognition of his spirited leadership and of a decade of genial and judicious conduct in the chair." A beautiful chair also formed part of the gift, and Mrs. Marsh received a Japanese garden of miniature living trees, enclosed in an oval porcelain tray. The presentation was made by Dr. L. Grant, of Neston, Sir William Hodgson, J.P., chairman of the Cheshire County Council, presiding. Unfortunately, Dr. Marsh was prevented from being present in person owing to ill-health.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—On Fridays, Oct. 14th, 21st, and 28th, at 5 P.M., Sir Arthur Keith, F.R.S., will give demonstrations in the theatre of the College. The subjects will be: (1) Results of Recent Researches into the Reproduction and Growth of Bone; (2) Rheumatic and other Changes in Joints illustrated by specimens from the Strangeways Collection; and (3) Congenital Dislocation of the Hip and Congenital Dislocation of other Joints.

MAUDSLEY HOSPITAL.—A post-graduate course in psychiatry will be held at the Maudsley Hospital, Denmark-hill, London, S.E., during October and November. It will run concurrently with a course on Diseases of the Nervous System which is to be given at the National Hospital, Queen-square, W.C., from Oct. 3rd to Nov. 25th, and so far as possible times of lectures and demonstrations have been arranged to enable practitioners to attend both courses. Details may be had on application to the medical schools of the two hospitals.

UNIVERSITY COLLEGE HOSPITAL.—In Covent Garden Market on Wednesday last an auction and flag day was held with the object of helping to reduce the debt of University College Hospital to its bankers, £30,000 of which must be cleared off this year. Many well-known firms sent articles for the sale, and a souvenir catalogue was prepared by the Chairman of the Appeal Committee, Mrs. Joseph Gluckstein, M.B.E., J.P. Miss Melville, the leading lady at the Winter Garden Theatre, opened the sale, and Sir Alfred Butt and the directors of Drury Lane Theatre, Mr. W. G. Irving, the market superintendent for the Beecham Estates, and many leading firms in the district gave their hearty support.

ROYAL INSTITUTE OF PUBLIC HEALTH.—The Harben lectures will be delivered in the lecture hall of the Institute, 37, Russell-square, London, W.C., on Oct. 17th, 18th, and 20th, at 4 P.M., by Prof. R. Bruynoghe, of the University of Louvain. His subjects will be the Twort-d'Herelle Phenomenon, and some New Research on Relapsing Fever.—The annual congress of the Institute for 1928 will be held at Dublin.—A course of lectures on the Health of the Nation will be given at the Institute during the next three months on Wednesdays, at 4 P.M. The programme is as follows: Oct. 12th, Sunlight for Childhood (Dr. C. W. Saleeby); Oct. 19th, Tuberculosis as a Social Disease (Prof. Lyle Cummins); Oct. 26th, Diseases conveyed to Man from Animals (Prof. F. T. G. Hobday); Nov. 2nd, Tuberculosis as a Problem of Childhood (Sir Henry Gauvain); Nov. 9th, the Present Situation in regard to Housing (Lt.-Col. F. E. Fremantle); Nov. 16th, the Milk-supply (Dr. Stenhouse Williams); Nov. 23rd, the Prevention of Heart Disease (Dr. Dingwall Fordyce); Nov. 30th, the Prevention of Cancer (Prof. Blair Bell); Dec. 7th, the Health of the Public School Boy (Dr. L. R. Lempriere); and Dec. 14th, the Changed Conditions of Quarantine (Prof. E. W. Hope).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A fortnight's course at the National Hospital for Diseases of the Heart will begin on Oct. 3rd. It will consist of lectures, demonstrations, ward rounds, and out-patient work from 10 A.M. to 4 P.M. each day and the entry is limited to 20. The Central London Throat, Nose, and Ear Hospital will hold a three weeks' course from Oct. 3rd to 22nd. It will be in two parts—clinical and operative—which may be taken separately or together. The clinical course will occupy each day from noon to 5 P.M., with operations at 9 A.M. most mornings, whilst the operative class (entry limited) will be held from 10 A.M. to 11.30 A.M. There will also be a practical course in peroral endoscopy and a course in bacteriology and pathology; the entry to these will be strictly limited. The subjects of other courses in October will be antenatal work at the Royal Free Hospital, consisting of demonstrations to not more than ten post-graduates at 5 P.M. on Fridays, Oct. 7th to 28th; diseases of children, at the Paddington Green and the Victoria Children's Hospital, morning and afternoons alternately at each hospital from Oct. 17th to 29th; electrotherapy at the Royal Free Hospital on Wednesdays at 4.15 P.M. from Oct. 12th to Nov. 2nd; gynæcology at the Chelsea Hospital from Oct. 17th to 29th; tropical medicine at the London School of Tropical Medicine on Tuesdays and Thursdays at 2 P.M. from Oct. 3rd to 29th; and a course in neurology at the National Hospital, Queen-square, from Oct. 3rd to Nov. 25th. Copies of all syllabuses and of the general course programme are obtainable from the secretary of the Fellowship at 1, Wimpole-street, London, W. 1, and will be sent regularly to those who wish it.

Dr. John Beattie, demonstrator in anatomy at University College, London, has been appointed assistant professor of anatomy at McGill University, Montreal.

ROYAL DENTAL HOSPITAL.—On Tuesday, Oct. 4th, at 4 P.M., Sir Walter Fletcher, F.R.S., will open the John Hampton Hale Research Laboratory and will distribute prizes to students. The hospital, whose address is 32, Leicester-square, London, W.C. 2, will be open to visitors from 3 o'clock.

ROYAL VETERINARY COLLEGE.—Prof. J. Macqueen, F.R.C.V.S., has been elected to the office of Dean, and Mr. Tom Hare, M.D., B.V.Sc., M.R.C.V.S., of the Lister Institute, has been appointed to the Chair of Pathology. The winter session will begin on Oct. 4th, and the opening address will be delivered at 3 P.M. on that day by Mr. E. M. Crookshank. Women students are now admitted to the College and post-graduate courses will shortly be started.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—The annual dinner will be held on Wednesday, Oct. 12th, at 7 for 7.30 P.M., at the Trocadero Restaurant, Piccadilly-circus. Ladies are invited, and application should be sent to Dr. J. P. Purvis, 16, The Grove, Greenwich, S.E. 10.

BRITISH SOCIAL HYGIENE COUNCIL.—Major-General J. E. B. Seely will preside over the Imperial Social Hygiene Congress to be held at the Caxton Hall, Westminster, from Oct. 3rd to 7th. Among the speakers will be Mr. David Lees, Colonel L. W. Harrison, and Dr. H. Crichton Miller.

UNIVERSITY OF DURHAM.—Mr. R. B. Green, M.B. Lond., F.R.C.S. Eng., who for five years has held the position of lecturer in anatomy at the College of Medicine, Newcastle-on-Tyne, has been elected Professor of Anatomy in succession to Prof. R. Howden.

CITY OF LONDON HOSPITAL.—To liquidate its liabilities and carry out improvements planned as far back as 1914, at least £25,000 is needed by the City of London Hospital for Diseases of the Heart and Lungs. Though the total income last year was £34,474 and the expenditure was only £33,231, the sum of £9000 is due to the bank. The generosity of the Prudential Assurance Company has enabled the hospital to erect and equip a new pathological laboratory, but the country sanatorium at Saunderton has to remain closed for lack of funds.

DONATIONS AND BEQUESTS.—Mrs. Caroline Day, of Morley, Yorks, left £1000 each to the Women and Children's Hospital, Leeds, St. Dunstan's Hostel for the Blind, and Dr. Barnardo's Homes.—Mr. John Edwin Fyfield, High Barnet, N., on the death of his wife, left one-half of the residue of his property to endow a bed or ward in the Freemasons' Hospital, in memory of his son who was killed in the war.—Dr. John Storrs Brookfield, of Phillimore-gardens, Kensington, W., left £2000 to the University of New Brunswick, Canada, for a scholarship in natural science, and £100 each to the London Hospital, E., the Willesden Hospital, the Society for the Prevention of Cruelty to Animals, the Society for the Prevention of Cruelty to Children, and the rector of Upminster for the poor.—Mrs. Agnes Wood, of Walmer-place, Walmer, Kent, and formerly of Liverpool, besides other bequests left £5000 each to Halifax Infirmary, Royal Southern Hospital, Liverpool, Liverpool Queen Victoria District Nursing Association and Aged Merchant Seamen and Widows' Fund. In the event of the failure of certain trusts the residue falls to such charities as may be named in accordance with the provisions of the will.—Mr. Joseph Henry Farnworth, of St. Ives, Flixton, Lancashire, left £500 each to the Manchester Royal Infirmary, Ancoats Hospital, and Salford Royal Hospital and Dispensary.—Mr. George Frederick Moore, of Chardwar, Bourton-on-the-Water, Gloucestershire, left £2000 to the Bourton-on-the-Water Cottage Hospital.—The late Mr. Edwin Webster, of Birkdale, Southport, left property of the value of £35,390, with net personalty £32,591. He bequeathed real estate at Wibsey and Bradford to his wife for life, and then to the Bradford Infirmary. The residue of the property to his wife for life and then to be divided into 36 parts: Five for the Southport Infirmary, four for the London Missionary Society, three each for the Southport branch of the Society for the Prevention of Cruelty to Children and Dr. Barnardo's Homes; two each for the North of England Children's Sanatorium, Southport, the Southport Homœopathic Cottage Hospital, the Southport Hydropathic Hospital, and other charities, and one for St. Dunstan's Home for the Blind.—Mr. Thomas Hutchinson Russell, of Sowerby, nr. Thirsk, Yorks, left £1500 to the Lambert Memorial Hospital, Thirsk, and £1000 each to the Leeds General Infirmary and the Yorkshire County Hospital, York

ST. MARY'S HOSPITAL POST-GRADUATE COURSE, 1927. — This course will be held this year as usual during the week-end preceding the autumn session. On Saturday, Oct. 1st, at 11 A.M., Prof. C. A. Pannett will speak on Minor Orthopædic Problems of General Practice. The other lectures to be given on that day are as follows:—12 noon: Treatment of Pernicious Anæmia, by Sir William Willcox; 2.15 P.M.: Cæsarean Section and After, by Mr. T. G. Stevens; 3.15 P.M.: How to Deal with Retention of Urine in an Old Man, by Mr. Zachary Cope. On Sunday, Oct. 2nd, at 10.30 A.M., Dr. Ernest Young will lecture on the Use of the Duodenal Tube in Treatment of Gastric and Duodenal Ulcers; at 11 A.M. Dr. C. M. Wilson will speak on Early Recognition of Some Common Diseases; and at noon Dr. John Freeman will discuss When to Use and What to Expect from Blood Transfusion. On Monday, Oct. 3rd, at 11 A.M., Dr. Wilfred Harris will lecture on the Significance of Pain in the Lower Extremities and its Treatment. On the same day, at noon, Mr. S. Maynard Smith will lecture on Obstruction of the Large Bowel. In the afternoon lectures will be given, illustrated by lantern slides, by Mr. Aleck W. Bourne on Recent Work on the Pituitary and Ovary (2.15 P.M.), and Mr. Duncan Fitzwilliams on Early Diagnosis of Carcinoma of Tongue (3.15 P.M.). These meetings are open to all medical practitioners without fee. They will be held in the library of the Medical School, except those on Monday afternoon, which will be given in the Unit Theatre, Beverly Ward.

LORD MAYOR OF LIVERPOOL'S APPEAL.—So far the Lord Mayor of Liverpool has received £21,956 8*s.* 6*d.* in response to his appeal for £60,000 for the Liverpool medical charities.

PEOPLE'S LEAGUE OF HEALTH.—A series of ten Sims Woodhead lectures will begin on Thursday, Oct. 13th, at 6 P.M., in the lecture room of the Medical Society of London. Among the lecturers will be Prof. H. E. Roaf, Mr. E. B. Turner, Dr. J. Sim Wallace, Dr. H. Gardiner-Hill, Prof. M. S. Pembrey, F.R.S., Prof. B. Collingwood, Dr. T. Beaton, and Dr. H. Crichton Miller. Further particulars and syllabus will be supplied by Miss Olga Nethersole, 12, Stratford-place, W.

Appointments.

CAIRNS, MARGARET D., M.B., Ch.B. Edin., has been appointed Medical Officer of Health for the Burgh of Stirling.

CUFF, A. W., M.B. Camb., F.R.C.S. Eng., Consulting Surgeon to the South Yorkshire Mental Hospital, Sheffield.

JOHNSTONE, A., M.B., Ch.B. Aberd., D.P.H., Medical Officer of Health for Greenock.

JONES, L. W., M.B., B.Chir. Camb., M.R.C.S., Medical Officer and Public Vaccinator for No. 2 District of the Union in Anglesey.

PITTARD, M., M.R.C.S., L.S.A., State Medical Officer of the Island of Sark.

Vacancies.

For further information refer to the advertisement columns.

Aberdeen Royal Infirmary.—Jun. Asst. Ophth. S.

Ascot, Heatherwood Hospital.—Res. Asst. M.O. £300.

Belgrave Hospital for Children, Clapham-road, S.W.—H.P., Asst. H.P., and H.S. Each at rate of £100.

Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.—Sen. and Jun. H.S.'s. At rate of £100 and £50 respectively.

Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.—Asst. Out-patient Reg.

Devonport, Royal Albert Hospital and Eye Infirmary.—H.S. £150.

Dundee Royal Infirmary.—Asst. S.

Durham County Council, &c.—Dist. Tub. M.O., &c. £500.

Exeter, Royal Devon and Exeter Hospital.—H.P. Also Cas. O. At rate of £130 and £100 respectively.

Freetown, Sierra Leone, Liverpool School of Tropical Medicine Laboratory.—Two Research Assts. Each £600.

Gravesend and North Kent Hospital, Kent.—Jun. H.S. £150.

Grosvenor Hospital for Women, Vincent-square, S.W.—Hon. Anæsthetist.

Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Anæsthetist. Also Res. M.O. and H.P. At rate of £150 and £100 respectively, and Med. Reg. £100.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S., H.P., and Asst. Cas. O. Each £50.

Jersey General Hospital and Poor-Law Infirmary.—Res. M.O. £200.

Jewish Health Organisation of Great Britain.—M.O. to Psychological Clinic. £1 10*s.* per session.

Kolar Gold Field Hospital, South India.—3rd Asst. M.O.

Leeds City.—Asst. Clin. Tuberculosis O. £600.

Liverpool, Mill-road Infirmary, and Smithdown-road Institution.—Res. A.M.O.'s. Each at £200.

London Hospital, E.—Asst. P. Also 1st Asst. and Reg. to one of the Med. Firms, and 1st Asst. and Reg. to one of the five Surg. Firms. Each £300.

London Temperance Hospital, Hampstead-road, N.W.—Clin. Asst., Ear, Nose and Throat Dept.

Middlesex Hospital Medical School, London, W.—2nd Demonstrator for the Dept. of Physiology.

National Dental Hospital, Great Portland-street, W.—Hon. Anæsthetist.

Newcastle-upon-Tyne Hospital for Sick Children.—Jun. H.S. At rate of £100.

Otago University and Dunedin Hospital, New Zealand.—Sen. Res. Surg. O. £500.

Paddington Green Children's Hospital, London, W.—H.P. At rate of £150.

Prince of Wales's General Hospital, Tottenham, N.—H.S.'s and H.P.'s. At rate of £120 and £90 respectively.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Two H.P.'s. Each at rate of £100.

Rochdale Infirmary and Dispensary.—Jun. H.S. £200.

Rotherham Hospital.—H.P. £180.

Royal Eye Hospital, St. George's-circus, Southwark, S.E.—Jun. H.S. £100.

Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. At rate of £150.

St. George's Hospital, S.W.—Asst. Radiologist. £100.

St. Mark's Hospital for Cancer, City-road, E.C.—Radiologist.

St. Mary, Islington, Infirmary, Highgate Hill, N.—Radiographer. Guinea per day.

St. Thomas's Hospital.—Asst. Pathologist in Venereal Dept.

Scottish Board of Health.—M.O. £600.

Seamen's Hospital, Albert Dock, Connaught-road, E.—Ophthalmologist.

Shrewsbury, Royal Salop Infirmary.—Sec. Supt. £600.

Smethwick County Borough.—Asst. M.O. and Sch. M.O. £600.

Stoke-on-Trent, North Staffordshire Royal Infirmary, Hartshill.—Hon. Asst. Ophth. S.

Sudan Government, Wellcome Tropical Research Laboratories, Khartoum.—Asst. Bacteriologist. £E.720.

Warwickshire and Coventry Joint Committee for Tuberculosis.—Asst. Tuberculosis O. £650.

Western Ophthalmic Hospital, Marylebone-road, N.W.—Sen. and Jun. Non.-Res. H.S.'s. At rate of £150 and £100 respectively.

Willesden General Hospital.—H.S. At rate of £100.

The Chief Inspector of Factories announces vacant appointments for Certifying Factory Surgeons at Cardenden (Fifeshire), Festiniog (Merionethshire), Ripon (York, West Riding), St. Mary's (Isles of Scilly), Breage (Cornwall), and Beith (Ayrshire).

Births, Marriages, and Deaths.

BIRTHS.

BHANDARI.—On Sept. 15th, at "Old Court," Hanger-lane, Ealing, the wife of Dr. P. C. Bhandari, of Brentford, of a daughter.

BUCKLEY.—On Sept. 15th, at Kensington, the wife of Major C. D. M. Buckley, *M.C.*, R.A.M.C., of a son.

STUART.—On Sept. 14th, at Lowestoft, the wife of Surg.-Lieut. A. P. Anderson Stuart, R.N., of a daughter.

MARRIAGES.

BOWLES—GREAVES.—On Sept. 19th, at St. Stephen's Church, Rosslyn-hill, N.W., Roger Vincent Bowles, M.R.C.S., L.R.C.P., to Florence Maud Evelyn Greaves, elder daughter of Mr. and Mrs. Edwin L. Greaves, of Keats Grove, Hampstead, N.W.

LYDON—ANDERSON.—On Sept. 15th, at Sheffield, Francis L. Lydon, M.B., Ch.B., of Galway, to Helen Anderson, M.B., Ch.B., of Galway.

ORR—BENTALL.—On Sept. 15th, at Chapel-street Congregational Church, Southport, Ian Morison Orr, M.B., Ch.B., to Marjorie Violet, daughter of W. C. Bentall, O.B.E., F.R.C.S.E., and Mrs. Bentall, Oxford-road, Birkdale, Lancs.

PARRY—GRIFFITHS.—On Sept. 13th, at Tredegarville Baptist Church, Owen Brynog Parry, M.B., B.S. Lond., of Ninian-road, Cardiff, to Constance Lilian Griffiths, M.B., Ch.B., B.Sc., of Richmond-road, Cardiff.

DEATHS.

BREWER.—On Sept. 7th, at Fairview-road, Oxton, Birkenhead, Dr. Charles Samuel Brewer, O.B.E.

GAMGEE.—On the 16th inst. at Folkestone, Margaret, the dearly loved wife of Leonard Gamgee, F.R.C.S., 5, Norfolk-road, Edgbaston, Birmingham.

HARDWICK.—On Sept. 13th, at Richmond, Yorkshire, Harold George Cooke Hardwick, B.Chir. Camb., M.R.C.S., L.R.C.P., aged 64.

WRIGHT.—On Sept. 9th, suddenly, at Bournemouth, Lieut.-Colonel Frederick William Wright, D.S.O., I.M.S. (retd.), of Cromwell-road, South Kensington, aged 77.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE BIRTH OF MANKIND.

THE history of books which have had an influence upon knowledge is always interesting, particularly when we can trace the life of a book from its birth, throughout its life until its supersession or practical death. Such a pedigree is extant in the case of a book which had an enormous popularity in its day—namely, "The Birth of Mankind," or "The Woman's Book," the bibliography of which has been set forth at length by Sir D'Arcy Power in a paper read before the Bibliographical Society and which is now printed from the Transactions of the Society by the Oxford University Press. "The Woman's Book" first saw the light in 1513, when the Emperor Maximilian granted it copyright. The author was Eucharius Rosslin, city physician of Worms, and the original title was "Der Swangern Frauwen und Hebammen Roszgarten"—hence it has been colloquially known as "the Rosegarden." There was nothing particularly original in the book—it was an illustrated manual of midwifery compiled from ancient sources and mainly from Muscio's Latin version of Soranus's treatise on midwifery. Rosslin had an immediate success as an author, and his work was translated into Dutch in 1516, into Czech in 1519, into French in 1536, into Latin in 1532, and into English from the Latin in 1540, this version being the earliest known work in the English tongue on midwifery. The English translator was one Richard Jonas, of whom practically nothing else is known, and he dedicated his labours to "the most excellent vertuous Lady Quene Katheryne wyfe and most derely belouyd spouse unto the moste myghty sapient Christen prynce King Henry the VIII." It is a sad comment upon the vanity of human affairs to remember that two years later the head of the most excellent virtuous Lady Catherine Howard was cut off in the Tower by command of the most mighty Christian prince. In 1545 a new edition appeared enlarged and edited by Thomas Raynoldes, whose name appears on the title page of every successive edition until the last, that of 1654. There seems some doubt as to who he was, but he describes himself on the title page of the 1545 edition as "phisition." Sir D'Arcy Power takes his readers through the various editions and gives full bibliographical details of them and also reproduces many of the title pages. He also gives biographical particulars of the various printers and publishers. Thomas Adams, who published the 1604 and 1613 editions, was the son of a yeoman of Nyensavage, in Shropshire, a place which Sir D'Arcy Power cannot identify; there are two villages of the name "Neen" as now spelled, in Shropshire—namely, Neen Savage and Neen Solars, respectively east and south-east of Ludlow.

Other information about the book, not only bibliographical, appeared in THE LANCET for Nov. 22nd, 1924, in the Lloyd Roberts' Lecture delivered by Dr. Herbert Spencer.

TINEA CRURIS.

To the August number of the *Indian Medical Gazette* Lieut.-Colonel H. W. Acton and Dr. C. McGuire contribute a scholarly paper on Tinea Cruris, its Manifestations, Diagnosis, and Treatment, which covers a much wider field than its modest title suggests. It is a mistake, as they point out, to suppose that the ravages of the fungus responsible for dhobie itch are confined to the groin, for they are just as common on the feet and perhaps on the hands as well. This fact has been recognised by dermatologists for some time past, and the diagnosis of "gouty eczema" of the feet is a great deal less common than it used to be. In India eczematoid ringworm of the extremities and ringworm of the groin are often seen both in Europeans and Indians of all classes. Colonel Acton and Dr. McGuire believe that both forms are caused by the same fungus, *Epidermophyton inguinale*, which they also regard as responsible for many cases of cheiropompholyx. Moisture, heat, and friction are rightly considered predisposing and aggravating causes, and there is much to be said for the statement that many persons with no obvious sign of infection carry the nidus of it about with them in the interdigital space between the fourth and fifth toes, where it may lie dormant during residence at a hill station or in a temperate climate until the heat of the plains causes it to flare up again. The same sequence of events has often been noted in this country.

Several excellent photographs illustrate some of the clinical types of the disease, which are discussed in detail in the text, together with their common pyogenic complications. The mycology, methods of cultivation, and morphology are carefully recorded and illustrated by half-tone and coloured pictures. The histopathology, which explains the clinical types of the various lesions, is methodically examined, whilst the comments on treatment and prophylaxis will be useful to all who come across the protean manifestations of this troublesome infection.

THE TREATMENT OF DRUG ADDICTS IN PRISON.

A DRUG addict, against whom there were no previous convictions, was sentenced at Marlborough-street police-court on Sept. 17th to three months hard labour on each of four charges of obtaining money by false pretences with intent to defraud. Mr. Mead, the police-court magistrate, wisely made these terms of imprisonment consecutive and not concurrent, observing that it was quite possible that a year's imprisonment might effect a cure of the drug habit. He also stated that he appreciated that the sudden cessation of the drug might be serious for the defendant, and he would therefore draw attention on the commitment to the question whether it might not be considered necessary for the accused, subject to medical orders, to have discreet doses. But this, surely, is a question which may safely be left to the unfettered discretion of the medical officer of the prison, provided that the latter is fully informed (as he should be) of the history of the case. Judicial assistance in the prescription of medical treatment seems as unnecessary in the case of morphia addiction as it would be in the case of delirium tremens; moreover, the medical officer of a prison, administering a drug in the course of the proper treatment of a prisoner, requires no protection from the penal sections of the Dangerous Drugs Acts. The treatment of drug addicts in prison has presumably not yet necessitated any general instructions; the latest annual report of the Prisons Commissioners is silent on the subject. Nor is it known whether the Home Office has addressed any circular to magistrates to emphasise the value of a longer rather than a shorter sentence in such cases.

In the recent proceedings at Marlborough-street the accused was described as independent and his age was given as 42. He had served in the army in 1914 with credit and had relinquished his commission in 1915 on account of ill-health. He was stated to have been bankrupt four times. His offences were those of defrauding tradespeople by worthless cheques for small amounts. He informed the police that he had been ill for five years, was a drug-taker, and had been under the care of two doctors. A detective-sergeant from New Scotland Yard said that one of the doctors had been interviewed and had stated that the accused had been a drug addict for several years; he would still require treatment and his supply of morphia should be cut down gradually. A medical certificate was put in to the effect that the defendant had been a drug addict for years and that this condition had in all probability affected his moral sense. There seems to have been no suggestion of the accused obtaining supplies of morphia concurrently from more than one practitioner; indeed, the circumstances of the case did not involve reference to the Dangerous Drugs Acts or Regulations. The accused pleaded "Guilty" to the charges, and the task before the court was to decide the best means of protecting the community from the accused and protecting the accused from himself.

THE STANDING NURSE.

[To the Editor of THE LANCET.

SIR,—I feel sure there is no foundation for the charge contained in Dr. T. F. G. Mayer's letter on this subject in THE LANCET of Sept. 17th (p. 636). In hospitals the health of the nurses is carefully considered and they are encouraged to sit at their work when possible. It is the rule for nurses to sit when giving light treatment. In all the nursing homes I know the nurses are certainly not required to stand unnecessarily. I cannot imagine any nurse being so stupid as to stand when giving prolonged treatment which can be efficiently carried out when seated. It must be so uncomfortable for the patient!

Nurses must be getting rather tired of other people "taking up the cudgel" on their behalf. Most of them are modern girls and are quite capable of looking after themselves. There is very little unemployment amongst them, and if a nurse finds her condition of work intolerable she is practically certain of being able to obtain another post. The only people who may have difficulty in finding employment are the elderly, unfit, and the partially trained.

I am, Sir, yours faithfully,

Sept. 20th, 1927. MATRON.

To the Editor of THE LANCET.

SIR,—It was with great interest that I read Dr. Mayer's letter in your last issue calling attention to the often very unnecessary standing by nurses in carrying out medical or nursing treatment. As a practical nurse and one holding authority for many years, I have found it impossible to ignore the fact that this matter calls for serious attention if efficiency of the worker is to be maintained. I am in close touch with many of my colleagues of older years who are

debarred from many forms of exercise entirely owing to varicose veins developed and "neglected" during their training.

If only some of the scientific management and intelligent care of the employees applied by leading industrialists could be brought to bear in hospitals, the result would be a healthier body of workers and a much more efficient service. One does not wish to overlook the fact that in a busy ward of a hospital the demands of many patients allow of practically no time whatever for sitting, also that continued practice in standing enables us to stand the strain better than many who have chosen other walks in life; but it is wasteful, unintelligent, and shortsighted to stand, if the same degree of efficiency can be attained by sitting. Many nurses fear to sit lest their patients should think they were relaxing unnecessarily, for many patients feel they are not being nursed unless the nurse is unceasingly active, quite forgetting the strain of responsibility and certain tension of mind the nurse is always aware of in connexion with her patient.

It would be a great help if in giving direction to a nurse, the medical man would indicate that certain treatment could be carried out while the nurse was sitting. This would reassure the patient that there was no negligence and would also "train" the nurse to husband her strength, a training which up to now has not been emphasised in our schools.

I am, Sir, yours faithfully,

Sept. 20th, 1927. PUBLIC HEALTH NURSE.

THE SHIPPING EXHIBITION AT OLYMPIA.

AT the Shipping Exhibition that opened at Olympia on Sept. 8th and continued for a fortnight there were fewer exhibits of interest to the seafaring hygienist than there were last year. There were two fans with "runners" like the well-known Sirocco—namely, the Capell (on the same axle as its driving steam turbine) and the Mawdsley (electric driven). Messrs. Siebe and Gorman had a diving exhibit and showed several patterns of outfit for men who have to work in dangerous gases or in fire. There was a model of a diver who carries with him the air for his own breathing, so that he has not to bother with a pump or that further cause of anxiety, an air-pipe. He cannot, of course, work for long spells or at great depths, but could leave a submarine, if she were checked at ten fathoms or less, and seek for the obstruction, re-entering the water-lock through which he had left the boat. This lock being then closed to the sea and freed from water by compressed air, the diver would be gradually decompressed according to the rules and received back among the crew. This firm showed also a glass-sided tank in which a diver gave exhibitions of cutting iron, under water, with the oxy-acetylene blowpipe.

THE ACTION OF LIQUID PARAFFIN ON THE BOWEL.

IN order to decide what is the action of liquid paraffin upon the fæces Dr. E. Schlagintweit, of Munich, has undertaken a series of experiments on white mice, and describes them in the *Münchener Medizinische Wochenschrift* of April 22nd. Paraffin, when introduced into the stomach in whatever quantity, took four to five hours to appear in the excreta, and its excretion went on for a length of time varying with the dosage; this was seven hours for a dose of 0·001 c.cm. per gramme of body-weight, which roughly corresponds to the dose usually prescribed in man. The normal interval between ingestion of food and its excretion was ascertained to be five to six hours, and a dose of paraffin reduced this to four to five hours, a fact which shows that paraffin is definitely a laxative. The theory that it acted as a lubricant between the intestinal wall and the fæcal column was not supported by actual inspection. Sections from the stomach and all parts of the bowel showed the paraffin emulsified extremely finely throughout the whole fæcal mass; never in its whole transit did it form a confluent surface. Only when massive doses were given did it escape as a liquid from the anus. Paraffin, though difficult to emulsify in water, divides readily enough when mixed with digestive secretions, and this is the causes of its immediate emulsification in the stomach. Paraffin softens the end of the column and is, therefore, therapeutically effective, says Dr. Schlagintweit, but its softening action is due not to its lubricating, or even its emulsifying properties, but to its power of holding water in emulsified form. Stools that contain paraffin contain also 15 per cent. more water than usual, and water in this state is very resistant to absorption by the bowel. He prefers emulsified paraffin to the pure oil, on the ground that a ready-made emulsion does not leak in overdose. Dr. Schlagintweit's results, although they cannot be transferred without due reserve to human experience, may yet serve to provoke further inquiry into the mechanism of so-called intestinal lubricants.

HYPOTENSION OF AMERICANS IN PEKING.

IN the current issue of *Archives of Internal Medicine*, Dr. C. L. Tung comments on the fact that in examining groups of healthy Chinese the average blood pressure, both systolic and diastolic, is lower than that of Occidental races. The average systolic pressure of healthy adults in the United States is approximately 125 and the diastolic 80. For Chinese of the same age the pressures are 112 and 70 respectively.

These facts have led him to study the effects on blood pressure of residence in Peking, in 58 Americans. Readings were taken in America and again in Peking after three years there. The readings showed a decrease in both systolic and diastolic pressure in over 60 per cent. and an increase in only 15 per cent. There was an average decrease of 9 mm. of mercury in systolic, and 11 mm. in diastolic, pressure, in spite of the increase of age. Dr. Tung points out that the fall of pressure cannot be due to climatic changes, for Peking is in the temperate zone, but suggests that the quieter life there, as opposed to the rush of American life, may be the cause. More details about the occupation and mode of life of each individual might help to solve this problem.

METROPOLITAN HOSPITAL NURSES' HOME.

WE are asked to say that the nurses' home which the Metropolitan Hospital proposes to build at a cost of £60,000 will accommodate 114 members of the nursing staff together with the necessary study and recreation rooms and not only 60 nurses and six sisters as previously stated.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Sept. 26th, to SATURDAY, Oct. 1st.—WESTMINSTER HOSPITAL, S.W. Course in Medicine, Surgery, and the Specialties. All day course from 10.30 A.M. to 5.30 P.M. Lectures, demonstrations, and operations.—ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, Great Portland-street, W. Course in Orthopædics. All day, operations in the morning, followed by clinical demonstrations and clinical work in the afternoons.—ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, W. Course in Ophthalmology. Afternoons only. Clinical demonstrations at 2 P.M. followed by operations. Special demonstrations at 5 P.M.—BETHLEM ROYAL HOSPITAL, St. George's-fields, S.W. Psychological Medicine, Tuesdays and Saturdays at 11 A.M. Further information from Secretary, Mayfair 2236.

WEST LONDON HOSPITAL, POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, Sept. 26th.—10 A.M., Mr. MacDonald: Genito-Urinary Operations. 11 A.M., Mr. Tyrrell Gray: Surgical Wards. 2 P.M., Mr. Donald Armour: Operations.

TUESDAY.—10 A.M., Medical Registrar: Ward Demonstration. 2 P.M., Mr. Sinclair: Surgical Out-patients. 3 P.M., Dr. Pritchard: Medical Wards.

WEDNESDAY.—10 A.M., Dr. Owen: Medical Diseases of Children. 2 P.M., Mr. Gibb: Eye Department.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Dr. Ironside: Medical Out-patients. 3 P.M., Mr. Simmonds: Surgical Out-patients.

FRIDAY.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Operations. Mr. Vlasto: Throat, Nose and Ear Department.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy and Ward List. 10 A.M., Dr. Owen: Medical Diseases of Children.

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NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Sept. 26th.—2.30 P.M. to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.

TUESDAY.—2.30 P.M. to 5 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics. Operations.

WEDNESDAY.—2.30 P.M. to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinic. 2.30 P.M. to 5 P.M., Medical, Surgical, and Ear, Nose, and Throat Clinics. Operations.

FRIDAY.—10.30 A.M., Throat, Nose, and Ear Clinics. 2.30 P.M. to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.

TUESDAY, Sept. 27th.—4.15 P.M., Dr. J. C. Bramwell: Dyspnœa.

FRIDAY.—4.15 P.M., Dr. K. B. Pinson: Anæsthetics: When not to use Chloroform.

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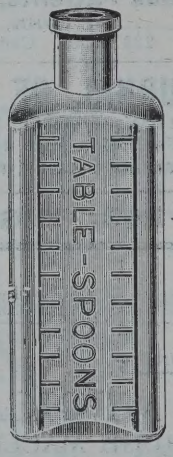

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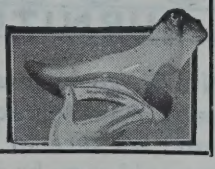

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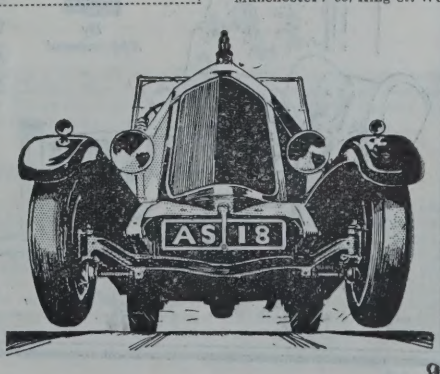

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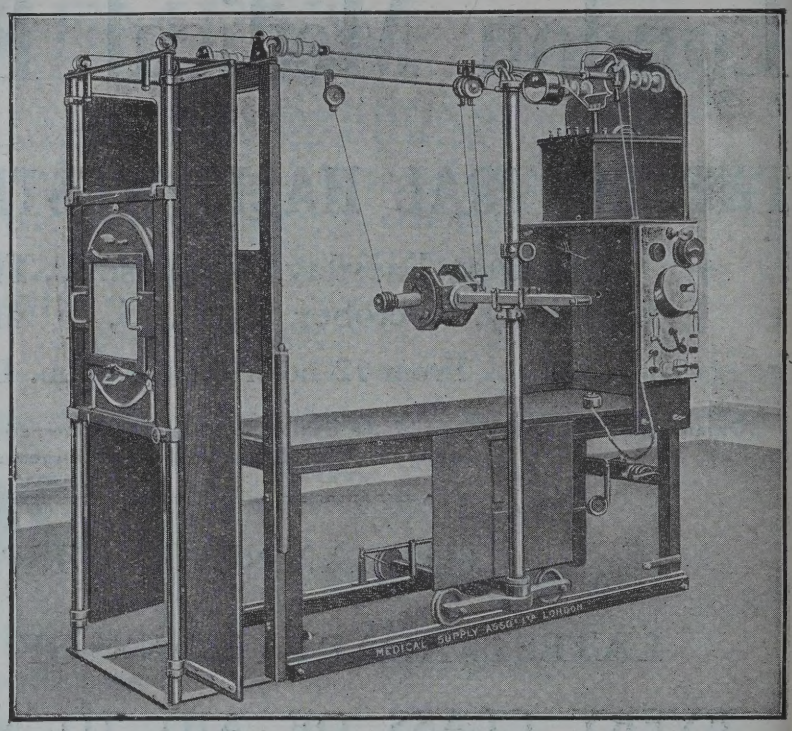

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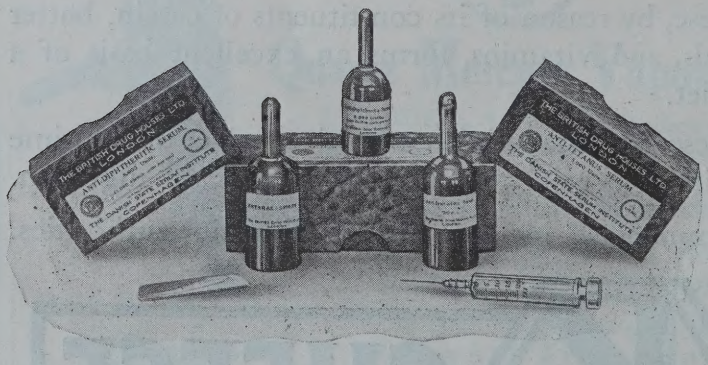

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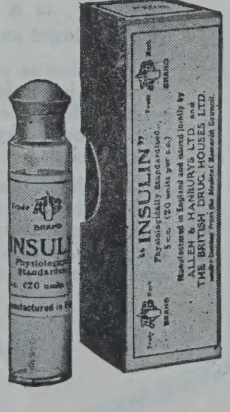

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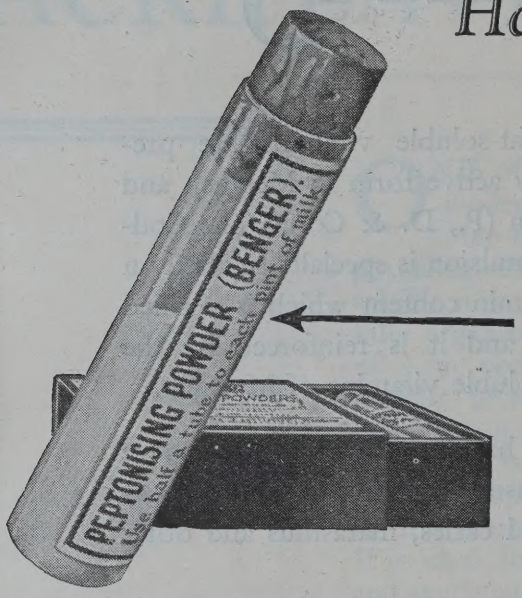
Half a tube of Benger's is enough!



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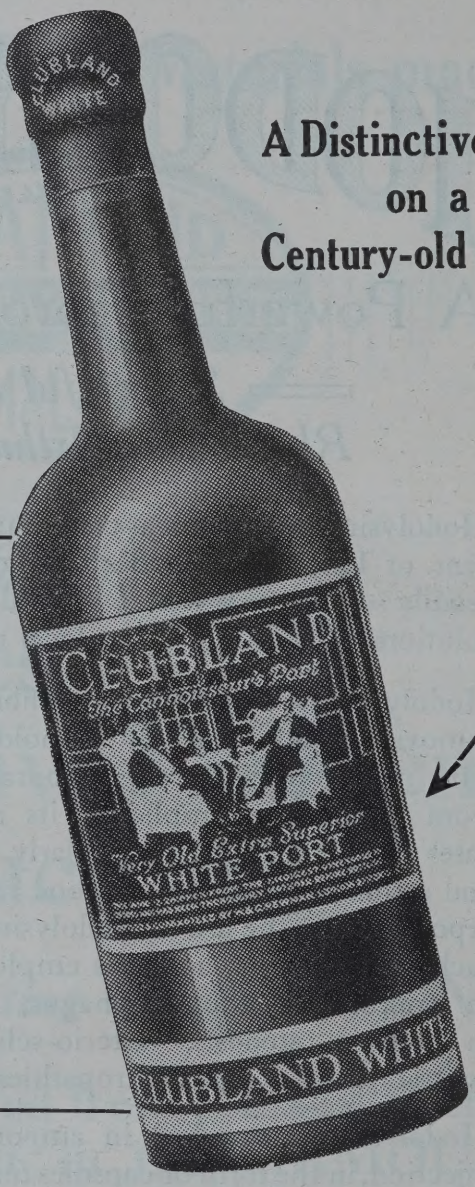

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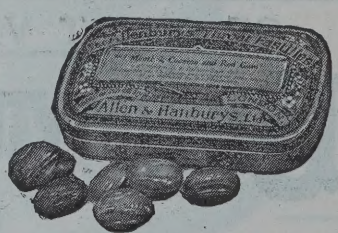

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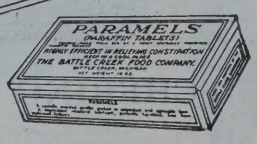

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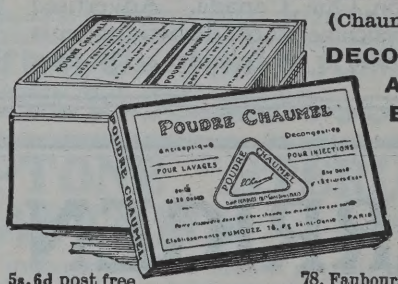

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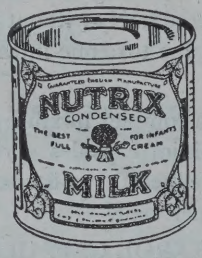

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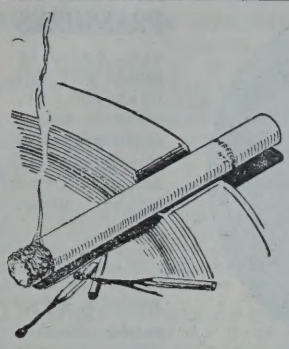

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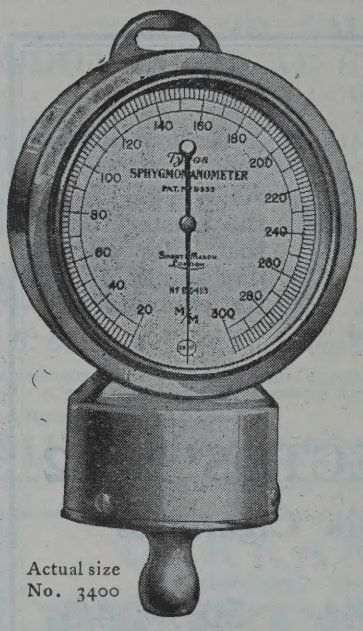

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OPENING OF WINTER SESSION, SEPTEMBER 30, 1927.

Introductory Address at 2.30 P.M. by Professor Sir Berkeley Moynihan, Bt., K.C.M.G., President of the Royal College of Surgeons of England. The Right Hon. the Viscount Hambleden will preside.

The Past and Present Students' Dinner will be held the same evening at 7, for 7.30, at the Criterion Restaurant, Piccadilly, W. 1. (The Secretaries to the Dinner Committee are Dr. Ernest Playfair and Dr. H. A. Richards.) The Chair will be taken by Professor G. F. Still, M.D., LL.D., F.R.C.P.

The Calendar of the School, including that of the School of Dental Surgery, giving information as to Prizes, Entrance and other Scholarships, &c., may be obtained on application to the Dean, H. Willoughby Lyle, M.D. Lond., F.R.C.S., J.P., or to S. C. Ranner, M.A., Cantab., the Secretary of the Medical School.

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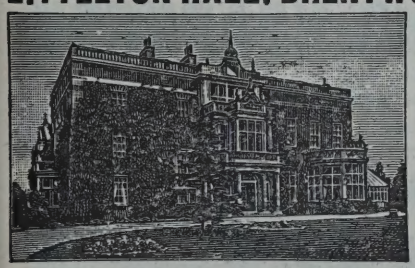

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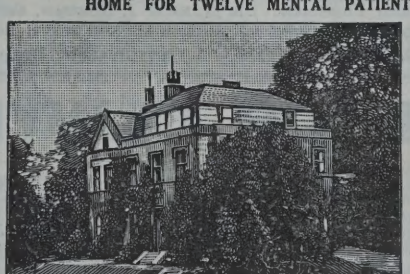

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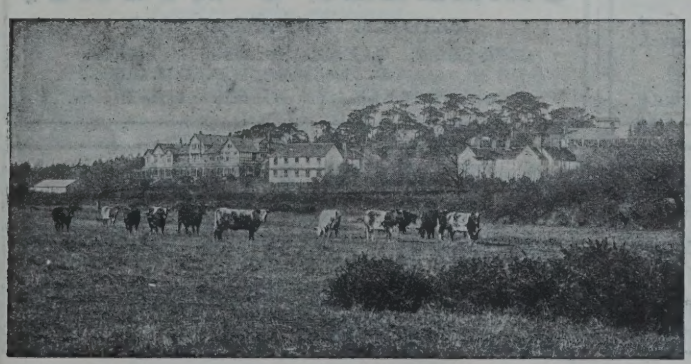

Specially built for the treatment of Pulmonary and other forms of Tuberculosis. Aspect S.S.W., on a carefully chosen site. Pure, bracing air. High sunshine record. Heliotherapy. Arc-light treatment. One mile from the coast. Electric light throughout. X-Ray installation. Full day and night Nursing Staff. Wireless throughout.

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S. VERE PEARSON, M.D.(Camb.), M.R.C.P.(Lond.); GEOFFREY LUCAS, B.A. (Camb.), M.D. Durham); L. WHITTAKER SHARP, M.B.(Camb.).

Apply: The Secretary,
The Sanatorium, Mundesley, Norfolk.

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The Beauty Spot of Egypt.

THE DRIEST HEALTH RESORT IN THE WORLD.
Average daily sunshine: 10 hours.

This unique climate is specially indicated for the following:—

RHEUMATOID ARTHRITIS,
FIBROSITIS of any origin,
CHRONIC ARTHRITIS of any origin,
SCIATICA,
CHRONIC BRONCHITIS,
EMPHYSEMA,
BRONCHIECTASIS,
ABSCESS OF LUNG,
CHRONIC NEPHRITIS,
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THE UPPER EGYPT HOTELS COMPANY

ASSUAN: Cataract Hotel and Grand Hotel.
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1st class Hotels.
Resident British Physicians. Chemist, Nurse & Masseuse.

For Particulars apply to:
Mr. A. R. BADRUTT,
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(EGYPT)
THE PRINCIPAL HEALTH RESORT IN EGYPT.

Sulphur - Saline Springs.

ETABLISSEMENT THERMAL. Sulphur Baths. Massage. Electro-Therapeutics, etc. The best winter health resort. Warm, dry, equable climate specially indicated for chronic bronchitis, emphysema, bronchiectasis, etc. Average eight hours' daily sunshine in winter. Situated in the desert, 16 miles south of Cairo. Special arrangements for Heliotherapy.

The Baths are suitable for treatment of **Rheumatism, Gout, Rheumatoid Arthritis, etc. Albuminuria, Chronic Skin Diseases.**

Golf, Tennis, Excursions to Pyramids and other places of interest.

GRAND HÔTEL, HELOUAN.

First-class Hotel. Special arrangements for invalids.

Under the same management as the Baths. Open November to April.

For particulars apply to the Director, GRAND HÔTEL, HELOUAN.

PALACE SANATORIUM
Montana, Switzerland.

For the Treatment of Pulmonary and Surgical
TUBERCULOSIS

Summer climate. Cool, sunny and bracing.
Altitude 5,000 ft. Lakes and Pine Forests.

MODERN EQUIPMENT
including roof Solarium, Throat Room, Clinical Laboratory, and recent X Ray Plant.
Day and Night Staff of English trained Nurses.

Resident Medical Officers — ANDREW MORLAND, M.B., B.S. Lond.; ERIC ZIMMERLI, M.D. Basle, M.R.C.S., L.R.C.P.Eng.; F. A. H. SIMMONDS, M.B., B.Ch. Cantab.

Special Reduced Summer Terms from £6 6s. 0d. per week.

Particulars from MEDICAL SUPERINTENDENT, or from THE SECRETARY, 5, Endsleigh Gardens, London, W.C.

Artificial Sunlight

All treatments under the direct supervision and control of the physician in charge. Medical men sending patients will receive full reports and case cards of treatment.

Further particulars on application to The Secretary

CLIFFORD SUN RAYS INSTITUTE
82, *Victoria Street, London, S.W.*1
'Phone: Franklin 6086

Sanatorium Dr. Arnold, Wiesbaden
PARKSTRASSE 30.

For Diseases of the Stomach, Intestines, Liver, Diabetes, Gout, Internal Complaints and Constitutional Diseases in General.

Select position at the Kurpark. Every modern comfort.

Consultation by arrangement. **Dr. Med JULIUS ARNOLD.**

SMEDLEY'S HYDRO.
MATLOCK. Established 1853.

Physicians: G. C. R. Harbinson, M.B., B.Ch.
R. MacLelland, M.D., C.M. (Edin.).

Prospectus and full information on application to the Manager.

PARK SANATORIUM
(FORMERLY SANATORIUM TURBAN)
DAVOS-PLATZ, SWITZERLAND.

First-class house, 5,150 ft. above sea-level. Large park and wood belonging to the sanatorium. Terms for board and residence, including room, medical treatment, etc., from Frs.20 per day. Prospectus.
Medical Superintendent, F. BAUER, M.D.

THE COTSWOLD SANATORIUM.

A private sanatorium specially built in 1898 on the Cotswold Hills, seven miles from Cheltenham, for the treatment of Pulmonary and all other forms of Tuberculosis on Nordrach lines. Aspect S.S.W., sheltered from North and East, elevation 800 ft. Pure bracing air. **SPECIAL TREATMENT** by artificial **PNEUMOTHORAX** (X-ray controlled), **TUBERCULINS, SANOCRYSIN,** and **ULTRA-VIOLET RAYS** is available when necessary without extra charge. **X-RAY** plant. Electric light. Radiators with hot and cold basins in all rooms. Full day and night Nursing Staff. Wireless in all rooms.

Resident Physicians: ARTHUR H. HOFFMAN, M.D., and GEOFFREY A. HOFFMAN, M.B.

Apply: Secretary, Cotswold Sanatorium, Cranham, Gloucester.

Telephone: 41 Witcombe. *Telegrams:* Hoffman, Birdlip.

FARMWOOD SANATORIUM, ASCOT

This Sanatorium provides for the treatment of patients suffering from PULMONARY and other forms of TUBERCULOSIS.

All special forms of treatment are now available.

There is a fully trained Night and Day staff of Nurses. Terms: From seven guineas a week. There are no extras. One hour from London.

Resident Physician: E. CANTON SEWARD, M.B., B.S. (Lond.).

For full particulars, apply to the Secretary, Farmwood, Ascot. [Tel. Ascot 519.

INEBRIETY.

Telephone: 16 Rickmansworth

DALRYMPLE HOUSE, RICKMANSWORTH, HERTS.

For the treatment of Gentlemen under the Act and privately. Established 1883 by an association of prominent medical men and others for the study of inebriety; profits, if any, are expended on the institution. Large secluded grounds on the banks of the river Colne. All kinds of out-door and in-door recreations and pursuits.—For particulars apply to F. S. D. HOGG, M.R.C.S., &c., Resident Medical Superintendent.

ALCOHOLISM, DRUG HABIT, and NEURASTHENIA.

BAY MOUNT, PAIGNTON.

Ladies and Gentlemen treated in small Private Home.

EXCELLENT RESULTS FROM MODERN TREATMENT.

COOL SUMMER CLIMATE.

MODERATE INCLUSIVE TERMS.

Prospectus, report, etc., from STANFORD PARK, Res. Med. Supt.

Phone: Paignton 5110.

RESIDENTIAL TREATMENT.

ALCOHOLISM and DRUG ADDICTION

at CALDECOTE HALL, NUNEATON.

This Mansion has been opened upon the most modern and scientific lines both physical and mental.

Resident Medical Superintendent—

Dr. A. E. CARVER, M.A., M.D., M.R.C.S., D.P.H., D.P.M.

WEEKLY FEES from 5 Guineas.

Prospectus from the SECRETARY, 40, Marsham Street, Westminster, S.W 1.

MATERNITY FOR NEW POOR.

Matron of West End Nursing Home receives MATERNITY CASES in Annexe of her Home. Single rooms £7 7s. Bright sunny ward £6 6s., exclusive of Doctors' fees. Exceptionally good cuisine. Milk straight from farm daily.

Matron, 30, Porchester-square, Hyde Park, W. 2.

'Phone: PARK 8996 & 8997 (2 lines). *'Grams:* MOHAIR, LONDON

Telegraphic Address: "Relief, Old Catton." Telephone: 290 Norwich.

NERVOUS & MENTAL AFFECTIONS.

Ladies only received.

The Grove, Old Catton, Norwich.—**A High-class Home for the Curative Treatment of Nervous Affections. Voluntary Boarders** are also received without certificates.

For full particulars apply to the Misses MCLINTOCK, or to Dr. S. BARTON, 34, Surrey-st., Norwich. Visiting Physician.

BOURNEMOUTH HYDRO

Plombière Lavage, Electrical, Massage, and Thermal Treatment; Brine, Turkish, Nauheim, and Radiant Heat Baths.

ULTRA-VIOLET LIGHT

Resident Physician—W. JOHNSON SMYTH, M.D. *Tel.* 341.

Grove House, All Stretton, Church STRETTON, SHROPSHIRE.

A PRIVATE HOME for the Care and Treatment of a limited number of Ladies Mentally Afflicted.

Climate healthy and bracing.

Apply to Dr. McClintock, Proprietor and Resident Medical Superintendent.

Bucks Mental Hospital, Stone, near Aylesbury.

The Visiting Committee of this Hospital can receive PRIVATE PATIENTS at a minimum weekly charge of 1½ guineas. No vacancies for female cases at present.

Apply to the Medical Superintendent.

TO THE MEDICAL PROFESSION.

Two Ladies (one Trained Nurse) take a few delicate people requiring care and attention in their well appointed HOME on the S.E. coast. Violet Ray Natural Sunlight Treatment through vita glass in Winter Garden; wonderful air, fifty yards from sea. From 5 guineas weekly.—Apply, Sealands, Dymchurch, Kent.

TO DOCTORS.

Nurse Norman, S.R.N., offers use of her Clinic, 8, Harley-street, equipped with latest Sunlight Lamps, to Doctors who prefer to treat their patients personally. Nurse trained in Sunlight at Guy's (references kindly permitted to the Matron of Guy's) and Masseuse, C.S.M.M.G., always in attendance.—'Phone: Langham 2765.

Physician of wide experience in the Treatment of Mental Disorder has a VACANCY in his Private Home for a Patient—voluntary or certified. Extensive lawns. Beautiful gardens, tennis, croquet, bowls, motoring, &c. Easy distance from town. Terms moderate.—Address. No. 862, THE LANCET Office, 423, Strand, W.C. 2.

Medical Man practising Physiotherapy in a Provincial Town is willing to receive one or two RESIDENT PATIENTS in his own home.—Address, No. 894, THE LANCET Office, 423, Strand, W.C. 2.

Nursing Home, on East Coast, practically overlooking sea. Standing in well planned, specially sheltered grounds. Affords a charming Home to those recovering from illness, and desiring rest, trained care, with every comfort and consideration. Fees from £7 7s. a week.—Address, Kent Lodge, Westgate-on-Sea, Kent.

Patient or Guest requiring care, rest-cure supervision, received in Doctor's charming residence, London. Excellent cuisine and home comforts, with companionship and cheerfulness.—Address, No. 512, THE LANCET Office, 423, Strand, W.C. 2.

Artificial Sunlight Treatment.—

PATIENTS received for treatment from Medical Men. London Artificial Sunlight and Colour-Therapy Clinic, 17, Endsleigh-street, W.C. 1. 'Phone : Museum 0719.

Doctors requiring careful School or

HOLIDAY HOME for Vacation for Children, please communicate Rocklands, East Hill, Hastings. Good food. Solarium with Vita glass. Playfield overlooks Sea and Glen.

Sunlight Treatment.—Medical

Electricity. Massage. Certificated Operators, male and female. Two treatments for 21s., inclusive.—8, Francis-street. Victoria (next A. & N. Stores). Tel.: Victoria 5615.

St. George's Hospital, S.W. 1.—

Applications are invited for the post of ASSISTANT RADIOLOGIST. Attendance required on three mornings and two afternoons per week. Remuneration at the rate of £100 per annum. Applications, accompanied by copies of not more than three recent testimonials, should be sent to the undersigned (from whom particulars of the duties of the office may be obtained, if desired) not later than 15th October next.

JAMES M. CHURCHFIELD, Secretary-Superintendent.

16th September, 1927.

Applications are invited from

registered medical practitioners for the post of MEDICAL OFFICER to the Psychological Clinic about to be established by the Jewish Health Organisation of Great Britain.

The Clinic will meet three times per week from 5.30 P.M. to 7 P.M., school holidays and Jewish festivals excepted. The remuneration will be at the rate paid by the London County Council—£1 10s. per session.

Applications, stating qualifications, experience, and testimonials, should be addressed to the Secretary, Jewish Health Organisation of Great Britain, 4, Upper Gloucester-place, N.W. 1, on or before October 24th.

Seamen's Hospital Society.—The

Committee of Management invite applications for the appointment of OPHTHALMOLOGIST to the SEAMEN'S HOSPITAL, Albert Dock, Connaught-road, E. 16.

The elected Officer will be required to attend the Out-patient Department once a week and would have two beds allotted to him.

Candidates must be either M.R.C.P., or F.R.C.S., and/or hold a special Diploma in Ophthalmology.

The elected candidate will be appointed for twelve months but will be eligible for re-election.

Applications, together with copies of not more than three testimonials, which should be typewritten or printed, to be sent in on or before Tuesday, October 4th, to the undersigned, from whom further particulars can be obtained.

R. E. V. BAX, Secretary.

Seamen's Hospital Society, Greenwich.

The Prince of Wales's General

HOSPITAL, Tottenham, N. 15.

Applications are invited for the following posts, vacant on the 15th October next :—

HOUSE SURGEON	£120 per annum
SPECIAL HOUSE SURGEON	£120 per annum
HOUSE PHYSICIAN	£120 per annum
JUNIOR HOUSE SURGEON	£90 per annum
JUNIOR HOUSE PHYSICIAN.. ..	£90 per annum

with residence, board, and laundry.

The appointments are held for six months, but the holders are eligible for re-appointment for a further term.

Candidates (Male) must be fully qualified and registered, and applications (on prescribed form), together with copies of three recent testimonials, should be sent to me on or before the first post on Tuesday, 27th of September next.

3rd September, 1927. FREDK. W. DREWETT, Director.

The Hospital for Sick Children,

Great Ormond-street, London, W.C. 1.

A HOUSE SURGEON is required on 12th October, 1927, and a HOUSE PHYSICIAN and ASSISTANT CASUALTY OFFICER is required on 14th October, 1927.

Gentlemen are invited to send in their applications, addressed to the Secretary, before 12 o'clock, on Monday, 3rd October, 1927, with copies of not more than three testimonials given specially for the purpose, and also evidence of their having held a responsible hospital appointment.

The appointments are made for six months. Salary £50, laundry allowance £5, board, and residence, in the Hospital.

Candidates must be unmarried, and possess a legal qualification to practise.

All candidates must be in attendance to appear before the Joint Committee, if required, at their meeting on Wednesday, 5th October, 1927, at 5 P.M. precisely.

Forms of application and copies of the rules may be obtained from the Secretary.

By order of the Board of Management,

September, 1927. JAMES MCKAY, Secretary.

Royal Eye Hospital, St. George's

Circus, Southwark, S.E. 1.—Applications are invited for the appointment of JUNIOR HOUSE SURGEON. Applicants must have previous experience in Ophthalmology. Salary at the rate of £100 a year, with board, quarters and washing. Applications, with copies of three testimonials, should be sent to the Secretary of the Hospital not later than Oct. 10th.

London Hospital, E.—There is a

vacancy for the post of ASSISTANT PHYSICIAN at this Hospital.

Candidates must be Members of the Royal College of Physicians in London.

Applications should be sent to the House Governor, and should arrive not later than Saturday, October 15th.

London Hospital, E. E. W. MORRIS, House Governor.

London Hospital, E.—Applications

are invited for the post of FIRST ASSISTANT AND REGISTRAR to one of the Medical Firms.

The appointment is for one year from the date of election, but is renewable annually, on application, for two further periods of one year.

Salary £300 per annum, payable by Hospital and Medical College jointly.

Candidates, who should be fully qualified medically, should send in their applications and testimonials not later than the first post on Saturday, October 15th. Further particulars may be obtained from the House Governor.

London Hospital, E. E. W. MORRIS, House Governor.

London Hospital, E.—Applications

are invited for the post of FIRST ASSISTANT AND REGISTRAR to one of the Five Surgical Firms.

Candidates must be Fellows of the Royal College of Surgeons. The salary is £300 per annum, which is payable by the Hospital and Medical College jointly.

The ability to teach is a necessary qualification.

The appointment is for one year and is renewable up to three years.

Holders of the appointment must come into residence during the half week the "firm" is on full duty.

Applications should arrive not later than Saturday, October 15th.

Further particulars may be obtained from the House Governor, London Hospital, E. E. W. MORRIS, House Governor.

London Hospital, E.

Western Ophthalmic Hospital, Mary-

lebone-road, London, N.W. 1.

Applications are invited for the post of SENIOR and JUNIOR Non-resident HOUSE SURGEONS. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months. Some previous Ophthalmic experience is required. The selected candidates will be required to take up duty on October 1st. Applications, accompanied by copies of three testimonials, should reach me by September 26th, and candidates should be prepared to attend before the Medical Committee on September 28th at 5 P.M. Candidates should state in their application whether they are prepared to accept either post. H. W. BURLEIGH, Hon. Sec.

Middlesex Hospital Medical School

(University of London),
London, W. 1.

Wanted, a SECOND DEMONSTRATOR (medically qualified) for the Department of Physiology.

The Demonstrator will be expected to carry out research under the direction of the Professor, and ample time and facilities will be afforded for this work.

He will, in the first instance, be appointed for one year, and be eligible for re-appointment on the recommendation of the Professor. Salary to commence at £350 per annum. Application, together with testimonials, should be sent to the School Secretary not later than October 8th.

Willesden General Hospital,

Harlesden-road, N.W. 10.
(Extension to 110 Beds.)

The Board of Management invite applications for the appointment of HOUSE SURGEON (Male). Candidates must be duly registered under the Medical Acts and unmarried.

The appointment is for a period of six months from 1st November, 1927 (the first three months as Junior House Surgeon, the second three months as Senior House Surgeon). Salary at the rate of £100 per annum, with board, residence, and laundry.

Full detailed applications, with copies of testimonials, to be received by the Secretary not later than noon on Monday, 3rd October, 1927.

5th September, 1927.

London Temperance Hospital,
Hampstead-road, N.W. 1.

Applications are invited for the post of CLINICAL ASSISTANT, Ear, Nose and Throat Department (duties, one afternoon per week). Candidates must send in applications addressed to the Secretary, not later than Thursday, 13th October.

The Grosvenor Hospital for Women,
Vincent-square, S.W. 1.

Applications are invited for the post of HONORARY ANÆSTHETIST at above Hospital. Hours of duty—Friday afternoons, 2 to 5.30. Full particulars may be obtained from Secretary, to whom applications, together with copies of recent testimonials, should be sent.

St. Mark's Hospital for Cancer,
FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, London, E.C. 1.—Applications are invited for the post of RADIOLOGIST. Applications, with copies of testimonials, should be sent to the undersigned, from whom particulars of the duties of the post may be obtained, not later than the 8th of October next,

Signed, RAYMOND BULL, Secretary.

National Dental Hospital, Great
Portland-street, W. 1.
(Dental Department of University College Hospital.)

Applications are invited for the appointment of HONORARY ANÆSTHETIST for duty on Saturday mornings at the National Dental Hospital, Great Portland-street, W. 1, and should be forwarded to the Secretary, University College Hospital, Gower-street, W.C. 1, before noon on Saturday, 15th October, 1927.

Royal Free Hospital, Gray's Inn-
road, W.C. 1.

CASUALTY OFFICER.

Applications are invited from duly qualified Medical Men for the post of Casualty Officer. Previous experience essential. Salary at the rate of £150 per annum. Intending candidates should submit, applications stating age and accompanied by copies of three recent testimonials, to the undersigned before October 6th. The appointment will be tenable for six months from 1st November next. REGINALD R. GARRATT, Secretary.

Paddington Green Children's Hospital
(Incorporated), London, W. 2.—HOUSE PHYSICIAN.—This appointment will become vacant on November 1st, 1927. Gentlemen (unmarried) are invited to send in their applications, with copies of three testimonials, addressed to the undersigned not later than October 14th, 1927. Salary at the rate of £150 per annum, with board and residence. Candidates who have held a responsible Resident Hospital appointment are preferred. The appointment is for a period of six months.

JAMES A. HAMLIN, Secretary.

St. Mary, Islington, Board of
GUARDIANS.

The Guardians invite applications for the post of RADIOGRAPHER at their Infirmary, Highgate-hill, N. 19. The successful candidate will be required to attend at the Infirmary twice a week, and will be paid at the rate of a guinea per day. Applications for the post, stating experience and qualifications, and two recent testimonials, to be sent to the Medical Superintendent, St. Mary, Islington, Infirmary, Highgate-hill, N. 19, by Monday, the 26th inst.

The Queen's Hospital for Children,
Hackney-road, Bethnal Green, London, E. 2.

TWO HOUSE PHYSICIANS required on 1st and 4th November respectively. Six months' appointment. Salary £100 per annum, with board, residence, and washing. Preference given to candidates who have previously held resident appointments.

Applications must be made on forms to be obtained from the Secretary, and must be sent in with not more than four testimonials, on or before 3rd October.

September 12th, 1927. T. GLENTON-KERR, Secretary.

Telephone: Clissold 0305 and 0534.

St. Thomas's Hospital.

VACANCY.

The appointment of an ASSISTANT PATHOLOGIST in the Venereal Department. Candidates can obtain all necessary information from G. Q. ROBERTS, Esq., Secretary, at the Hospital.

Central London Ophthalmic Hospital,
Judd-street, St. Pancras, W.C. 1.

There are vacancies for the posts of SENIOR and JUNIOR HOUSE SURGEON. Salaries at the rate of £100 and £50 per annum respectively, with board and residence in the Hospital. Applications, with testimonials, from duly qualified candidates, must be sent to the undersigned on or before September 29th. H. R. S. DRUCE, Secretary.

The Hospital for Epilepsy and
PARALYSIS, Maida Vale, W. 9.

Applications are invited for the post of MEDICAL REGISTRAR. They should be accompanied by copies of not more than three recent testimonials and should reach the undersigned by 5th October.

An honorarium of £100 is attached to this appointment, which is for one year, and further particulars can be obtained on application.

H. W. BURLEIGH, Secretary and General Superintendent.

The Hospital for Epilepsy and
PARALYSIS, Maida Vale, W. 9.

HONORARY ANÆSTHETIST REQUIRED.

Applications are invited for the post of Honorary Anæsthetist. Applications, with copies of not more than three recent testimonials, should reach me by 5th October. There will be an honorarium attached to the post.

H. W. BURLEIGH, Secretary and General Superintendent.

The Hospital for Epilepsy and
PARALYSIS, Maida Vale, W. 9.

A RESIDENT MEDICAL OFFICER required 1st November.
HOUSE PHYSICIAN required 1st November.

Applications are invited for these posts. The salaries are at the rate of £150 and £100 per annum respectively, and the appointments are for six months. Candidates for the post of Resident Medical Officer should state if they are willing to take that of House Physician, and applications, accompanied by copies of three recent testimonials, should reach me by 5th October.

The accommodation at the Hospital does not permit of Women Graduates holding these appointments.

H. W. BURLEIGH, Secretary and General Superintendent.

The Belgrave Hospital for Children
(Incorporated), Clapham-road, S.W. 9.

The Committee of Management invite applications for the posts of

HOUSE PHYSICIAN,
ASSISTANT HOUSE PHYSICIAN,
HOUSE SURGEON,

which will become vacant on October 31st. Applicants (Men) must be fully qualified and registered, and in the case of the Senior post they should have held at least one Resident appointment. The appointments are for six months, with board, residence, and washing provided. Salary at the rate of £100 per annum in each case. Applications, with copies of testimonials stating age, to be forwarded on or before Wednesday, October 5th.

By order.
THOS. CLAPHAM, Secretary.

Aberdeen Royal Infirmary.

The Board of Directors invites applications for the following appointment to the Honorary Staff, viz.—JUNIOR ASSISTANT OPHTHALMIC SURGEON.

Each candidate in his application should submit a full statement of qualifications and experience, along with three recent testimonials, and fifteen copies of each should be lodged with the Clerk and Treasurer, Aberdeen Royal Infirmary, 343, Union-street, Aberdeen, not later than Monday, 3rd October, 1927.

Royal Devon and Exeter Hospital,
Exeter. (200 Beds.)

HOUSE PHYSICIAN (Male), vacant 20th October, 1927.

CASUALTY OFFICER (Male), vacant 28th October, 1927.

Applications are invited for these resident posts.

The appointments are for six months but candidates are eligible for re-election.

The salaries are as follows: House Physician £130 per annum, Casualty Officer £100 per annum with board, apartments, and washing.

Applications, giving full particulars as to age, qualifications, together with certificate of registration and copies of recent testimonials, should be sent to the undersigned on or before Wednesday, 5th October, 1927.

By Order of the Committee.

September 16th, 1927. S. S. COLE, Secretary.

Gravesend and North Kent Hospital,
Kent.

JUNIOR HOUSE SURGEON.

Applications are invited from fully qualified men for the above post.

The Hospital contains 72 beds and cots, and has a large Out-Patient, Casualty and Ophthalmic Department.

Owing to the unique situation of the Hospital at the entrance to the Port of London, many accidents and interesting cases are treated, and the post affords an excellent opportunity for surgical experience.

The appointment will date from November 1st, 1927, and will be for twelve months, at a salary of £150 per annum, payable at the rate of £50 for the first six months as Junior House Surgeon, and the second six months as Senior House Surgeon at the rate of £100, in equal monthly instalments. There is also a possibility of the successful applicant being retained for a further six months, as a Resident Medical Officer at the rate of £250 per annum.

Applications, with copies of three recent testimonials, should be sent to the undersigned not later than the 15th of October, 1927. C. E. CHAPMAN, Secretary.

September 16th, 1927.

Warwickshire and Coventry Joint
COMMITTEE FOR TUBERCULOSIS.

ASSISTANT TUBERCULOSIS OFFICER.

Applications are invited from qualified and registered Medical Practitioners for the post of Assistant Tuberculosis Officer. Applicants must be prepared to devote the whole of their time to the duties of the office, and must have had special practical experience in the treatment of Tuberculosis in Sanatoria, Dispensaries and otherwise, and must be thoroughly acquainted with modern methods of diagnosis and treatment.

The salary is at the rate of £650 per annum, and is subject to a deduction of 5 per cent. in respect of contributions under the Local Government and Other Officers' Superannuation Act, 1922; in addition, motor-car allowances in accordance with the Committee's scale and reasonable travelling expenses are paid. The appointment is also subject to a satisfactory medical examination by one of the Committee's independent Medical Referees.

Forms of application, and statement of the duties and terms of the appointment, can be obtained from the undersigned. Applications marked "Assistant Tuberculosis Officer," with copies of not more than three recent testimonials, must be received by me not later than the 15th October, 1927.

Canvassing directly or indirectly will be considered a disqualification.

L. EDGAR STEPHENS, Clerk of the Joint Committee.

42, Warwick-street, Leamington, 15th September, 1927.

City of Leeds.

ASSISTANT CLINICAL TUBERCULOSIS OFFICER.

Applications are invited for the post of Assistant Clinical Tuberculosis Officer. Applicants should be duly qualified and registered Medical Practitioners, and must have had not less than three years' post-graduate experience, including experience in General Medicine and Surgery, and in the treatment of Tuberculosis in a Hospital, Sanatorium or other institution reserved for such cases. The possession of a D.P.H., though not essential, would be considered an additional qualification. The salary will be £600 per annum.

The person appointed will be required to undergo a medical examination, and to contribute to the Superannuation Fund established under the Local Government and Other Officers' Superannuation Act, 1922. He or she will also be required to enter into an agreement of service with the Corporation, terminable by one month's notice on either side. Form of application may be obtained from the Medical Officer of Health, 12, Market Buildings, Vicar-lane, Leeds.

Applications, endorsed "Tuberculosis Officer," together with copies of not more than three recent testimonials, must be delivered at my office, 26, Great George-street, Leeds, not later than Wednesday, 28th September, 1927.

Leeds, Sept. 9th, 1927. THOS. THORNTON, Town Clerk.

Liverpool School of Tropical Medicine.

Two RESEARCH ASSISTANTS required for the School Laboratory at Freetown, Sierra Leone. Salary £600 per annum, furnished quarters provided; leave granted at the end of each year. Successful candidates will be required to take a preliminary course of instruction at the School in Liverpool. Applications should be received not later than 30th September. For further particulars apply to the Hon. Dean, School of Tropical Medicine, Pembroke-place, Liverpool.

Royal Salop Infirmary, Shrewsbury.

—The Board of Management is prepared to consider applications from suitable candidates for the position of SECRETARY-SUPERINTENDENT. He must have had administrative experience and possess a thorough knowledge of Accounts.

Salary £600 per annum.

Applications stating age, experience, and not more than three recent testimonials, must be received not later than October 15th, addressed to the Chairman of the Board of Management, Royal Salop Infirmary, Shrewsbury.

Personal canvassing will disqualify.

Jersey General Hospital and Poor
LAW INFIRMARY.

RESIDENT MEDICAL OFFICER.

Applications are invited for the above post (male). Applicants must be duly qualified practitioners in medicine and surgery. Salary £200 per annum, with board, residence in the hospital, and laundry.

The appointment is for one year, and is renewable. Applications, with testimonials, must be sent in on or before Saturday, October 1st, 1927, addressed to the undersigned, from whom further particulars may be obtained.

P. BEUZEVAL, Secretary.

West Derby Union.

RESIDENT ASSISTANT MEDICAL OFFICERS (MALE).

The Guardians invite applications for the above Appointments at the MILL ROAD INFIRMARY and the SMITHDOWN ROAD INSTITUTION, Liverpool, respectively, at salaries after the rate of £200 per annum, together with the usual resident allowances.

Candidates must be single, fully qualified and registered.

Appointment will be for a period of one year in the first instance, subject to one month's notice to terminate on either side at any time, and to extension for a further period of twelve months at the option of the Guardians.

Applications, stating whether willing to accept either of the positions, giving age, qualifications, &c., with copies of three recent testimonials, to be sent to the undersigned not later than Tuesday, 4th October, 1927.

G. W. COSTER, Clerk to the Guardians.

Union Offices, Brougham-terrace, Liverpool.

14th September, 1927.

County Borough of Smethwick.

LADY ASSISTANT MEDICAL OFFICER.

The Council invite applications for the combined office of Lady Assistant Medical Officer of Health and School Medical Officer.

The duties will include attendance at the Maternity and Infant Welfare Centres, Supervision of Midwives, Medical Inspection of School Children (chiefly girls), and supervision of Health Visitors.

The Officer appointed will also be required to assist the Medical Officer of Health in other duties from time to time as directed.

Applicants must be registered Medical Practitioners and possess the Diploma of Public Health. Preference will be given to candidates who have had experience in the Medical Inspection of School Children and Infant Welfare Work.

Salary £600 per annum.

The successful candidate (who will be appointed subject to her passing a medical examination) will be required to contribute to the Corporation's Superannuation Scheme under the Local Government and Other Officers' Superannuation Act, 1922.

Forms of application may be obtained from the undersigned, to whom applications, endorsed "Assistant M.O.H.," and accompanied by copies of three recent testimonials, must be delivered not later than 28th September, 1927.

Canvassing, directly or indirectly, will disqualify.

HUGH PAUL, Medical Officer of Health.

Public Health Department, 280, High Street, Smethwick.

14th September 1927.

The Hospital for Sick Children,

Newcastle-upon-Tyne. (92 Beds.)—Applications are invited for JUNIOR HOUSE SURGEON (non-resident) for a period of six months as from 1st October, 1927. Salary at the rate of £100 per annum. Applications, stating age and qualifications, with copies of testimonials, to be sent to the Secretary, Mr. NEIL BRODIE, 18, City-road, Newcastle, on or before 28th September.

Rochdale Infirmary and Dispensary

(110 Beds.)—Wanted, JUNIOR HOUSE SURGEON (Male). Salary £200 p.a. including board, residence, laundry. Applications, stating age, nationality, &c., together with copies of three testimonials, to be sent to the Secretary, endorsed "House Surgeon." Conditions of appointment may be had on application to the Secretary.

W. WYNNE, Secretary.

Royal Albert Hospital and Eye

INFIRMARY, Devonport.—The post of HOUSE SURGEON will be vacant on September 30th. Applicants must be fully qualified, registered, and unmarried. Salary £150 per annum, with apartments, board, and laundry.

Applications, together with copies of not more than three testimonials (which will not be returned), addressed to the "Chairman of the Selection Committee," must reach the undersigned not later than Friday the 30th Sept., 1927.

FRANK ROWE, Secretary.

Royal Albert Hospital, Devonport, 19th Sept., 1927.

UNITED SERVICES FUND.

Heatherwood Hospital, Ascot.

RESIDENT ASSISTANT MEDICAL OFFICER.

Applications are invited from fully qualified Medical Practitioners (Bachelors not over 30) for the above post.

Candidates must have held some appointment in a General Hospital.

The present Hospital accommodation is 136 beds for the treatment of Surgical Tuberculosis and other forms of crippledom.

The appointment will be for a period of twelve months and may be extended at the end of that time.

Remuneration is at the rate of £300 per annum, together with residence, board, and laundry.

The officer appointed will be required to devote the whole of his time to the duties of the office, to give anæsthetics, etc., and generally to act under the supervision and direction of the Medical Superintendent.

Applications, stating (1) age, (2) qualifications, (3) experience and appointments held, accompanied by three copies of recent testimonials, should be forwarded to the Secretary, Heatherwood Committee, United Services Fund, 29, Cromwell-road, South Kensington, London, S.W. 7, before 3rd October, 1927.

Further particulars can be supplied on application to the Medical Superintendent, Heatherwood Hospital, Ascot, Berks.

North Staffordshire Royal Infirmary,

Hartshill, Stoke-on-Trent.

VACANCY FOR AN HONORARY ASSISTANT OPHTHALMIC SURGEON.

The Committee invite applications for the post of Honorary Assistant Ophthalmic Surgeon.

Candidates for appointments to the Honorary Medical Staff of the Infirmary will be required to produce evidence that they hold the Degree of Doctor of Medicine of a British or Irish University; the Degree of Master in Surgery of a British or Irish University; the Diploma of Fellow of one of the Royal Colleges of Surgeons of Great Britain or Ireland, or the Diploma in Ophthalmology.

Candidates will also be required to produce satisfactory evidence of having (after becoming qualified) filled an Ophthalmic appointment in a Hospital specially devoted to Eye work, or an appointment in the Ophthalmic Department of a recognised Medical School.

All the Members of the Honorary Medical and Surgical Staff must reside within five miles of the North Staffordshire Royal Infirmary, and must be communicable by telephone.

Candidates will be required to attend before the Election Committee at this Infirmary on Thursday, 13th October, at 3 P.M.

Canvassing will disqualify.

No testimonials will be permitted, but a candidate will be allowed to send to each member of the Election Committee a copy of his application, in which will be stated his age, qualifications, and experience.

A list giving the names and addresses of the members of the Election Committee may be obtained from the undersigned, in whose hands applications for the post of Honorary Assistant Ophthalmic Surgeon must be (with proof of the necessary qualifications) on or before Monday, 10th October, 1927.

By Order of the Committee,

W. STEVENSON, Secretary and House Governor.

Rotherham Hospital. — Wanted. —

HOUSE PHYSICIAN (Male), qualified. Salary £180 per annum, with board, lodgings, and laundry, to have charge of Out-patients, administer Anæsthetics, and assist Honorary Physician.

Applications, with copies of recent testimonials, to be sent to the Secretary, G. W. ROBERTS, 8, Moorgate-street, Rotherham.

Scottish Board of Health.

APPOINTMENT OF MEDICAL OFFICER.

The Scottish Board of Health are prepared to receive applications from Registered Medical Practitioners for the post of Medical Officer.

Medical Qualifications :—Applicants must be registered on the Medical Register as the holder of a diploma in Sanitary Science, Public Health, or State Medicine.

Experience :—Applicants must have had experience in Hospital, Health or general practice. Special consideration will be given to experience of school health work and of dietetics.

Age :—Must not be over 45 years.

Salary :—£600, rising by annual increments of £25 to £850, then by annual increments of £50 to £1000 per annum. Cost of living bonus will be payable in addition.

Duties :—Inspectorial and administrative duties in connection with the health work of Local and Education Authorities and such other duties as the Board may from time to time direct.

Further particulars and forms of application may be obtained from the Establishment Officer, Scottish Board of Health, 125, George-street, Edinburgh. Letters applying for forms of application should have the words "Medical Officer" boldly written in the top left-hand corner of the envelope. No application will be considered if received after 1st November, 1927.

The Otago Hospital Board.

UNIVERSITY OF OTAGO AND DUNEDIN HOSPITAL, New Zealand.

The post of RESIDENT SURGICAL OFFICER (SENIOR) will be vacant in February, 1928.

Candidates must hold a degree in Medicine of a British University; must have been qualified for three years: and have held Resident Hospital appointments for at least one year.

The duties of the successful candidate will be those of superintending house surgeons, with, in addition, certain tutorial work under the direction of the Professor of Surgery.

Salary for the position to be at the rate of £500 per annum, with board and residence.

Full details may be obtained on application to the High Commissioner for New Zealand, Strand, W.C. 2.

JOHN JACOBS, Secretary.

Otago Hospital Board, Dunedin, New Zealand,
22nd July, 1927.

A vacancy occurs for a Third Assistant

MEDICAL OFFICER in the KOLAR GOLD FIELD HOSPITAL, SOUTH INDIA.

Applicant must be young and have held a House appointment, preferably House Surgeon. A working knowledge of Bacteriology and Radiology desirable.

There is a large well-equipped Hospital with a Staff of four European and one Indian Doctor.

The gold field is situated at an elevation of 3000 feet with an excellent climate. Cricket, soccer, hockey, tennis, and golf are played.

Allowances.—Bungalow with water, fire, and electric light, servants, and motor-car or cycle.

Applicants should apply by letter to "K. G. F.," c/o Street's, 6, Gracechurch-street, E.C. 3, giving with their application full particulars of their qualifications, experience, &c.

Sudan Government.

WELLCOME TROPICAL RESEARCH LABORATORIES, KHARTOUM.

Applications are invited for the post of ASSISTANT BACTERIOLOGIST at an initial rate of pay of £E.720 per annum, with biennial increases to £E.1080 and thence after three years to £E.1200.

Applicants must be unmarried and will be expected to take up their duties immediately. Strict medical examination. Free first class passage.

Applications, stating age, degrees, experience (with special reference to Pathology), and copies of testimonials should be sent to the Controller, Sudan Government London Office, Wellington House, Buckingham Gate, S.W. 1, from whom further particulars regarding this post may be obtained on application. Envelopes should be marked "Assistant Bacteriologist."

Dundee Royal Infirmary.—The Directors invite applications for the office of ASSISTANT SURGEON.

Applicants should possess the Fellowship of one of the Royal Colleges of Surgeons or the Degree of Master in Surgery of a British University.

Applications, with twenty copies of three recent testimonials, must reach the Secretary not later than Monday, 24th October, 1927.

Durham County Council and CHESTER-LE-STREET URBAN DISTRICT COUNCIL.

APPOINTMENT OF DISTRICT TUBERCULOSIS MEDICAL OFFICER AND MEDICAL OFFICER OF HEALTH.

Applications are invited for the above appointments. Candidates must be registered in the Medical Register as holding a Diploma in Sanitary Science, Public Health, or State Medicine, and must have had satisfactory experience in the diagnosis and treatment of Tuberculosis.

The County Council will pay a salary of £500 per annum, rising by annual increments of £25 to a maximum of £550 per annum, for the post of District Tuberculosis Medical Officer, and both appointments will be subject to six months' notice on either side. It will be a condition of appointment that if either post is terminated the other appointment will also be automatically vacated.

Travelling and subsistence expenses according to scale will be paid by the County Council in respect of the duties of the District Tuberculosis Medical Officer.

The Chester-le-Street Urban District Council will be prepared to appoint the person selected by the County Council for appointment as District Tuberculosis Medical Officer as their Medical Officer of Health and to pay a salary at the rate of £200 per annum.

The appointments will be subject to the approval of the Minister of Health and will require the whole time of the person appointed, who will not be allowed to engage in private practice.

The person appointed will be required to live in or near Chester-le-Street.

Applications, accompanied by copies of not more than three recent testimonials, must be addressed to the County Medical Officer, Shire Hall, Durham, and must be received by him not later than the first post on the 10th October, 1927.

HAROLD JEVONS,
Clerk of the County Council of Durham.

Shire Hall, Durham, 15th September, 1927.

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Ophthalmic Surgeon desires Practice, ASSISTANTSHIP, or Appointment.—Address, No. 908, THE LANCET Office, 423, Strand, W.C. 2.

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London, S.W.—Death Vacancy.—Large better-class non-panel PRACTICE and first-rate house in good-class locality for sale. Price £4500.—Apply, Peacock & Hadley, Ltd., 19, Craven-street, Strand, W.C. 2.

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For Sale, Practice, favourite suburb (London). Vendor retiring after many years. Receipts over £2000. Panel 600. Price £000. House, garage, garden; £1500.—Apply, Vendors' Accountant, Box No. 915, THE LANCET Office, 423, Strand, W.C. 2.

For immediate Disposal, a very high-class West End PRACTICE, returning about £3000–£4000 per annum. Visits from 1–2 guineas: consultations 1–3 guineas. No Midwifery. Reasonable premium for quick sale.—Apply, No. 8197, c/o Percival Turner, 4, Adam-street, Strand, W.C. 2.

£3000.—For immediate Disposal by F.R.C.S. in Midland University City, easily worked PRACTICE, averaging for last four years over £3000 a year. Good middle class. Panel 1300. Visits up to half-a-guinea. Very little Midwifery. Excellent scope in growing district. Opportunities for surgery. Every investigation permitted. Ample reasons for disposing. Good corner house with separate surgery and garage.—Address, No. 913, THE LANCET Office, 423, Strand, W.C. 2.

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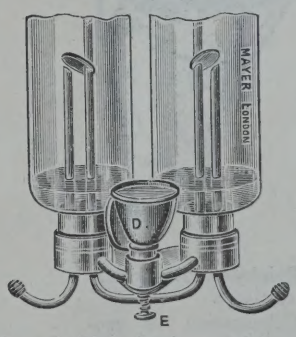

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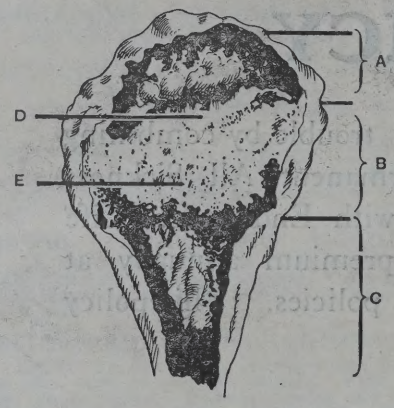

Fig 1

Femur of rat fed on rickets-producing diet deficient in Vitamin D.

A—Epiphysis.
B—Metaphysis.
C—Diaphysis.
D—Epiphyseal-diaphyseal cartilage.
E—Osteoid tissue

There is no calcification of the provisional zone of cartilage. A wide rachitic metaphysis absent from normal bone is formed

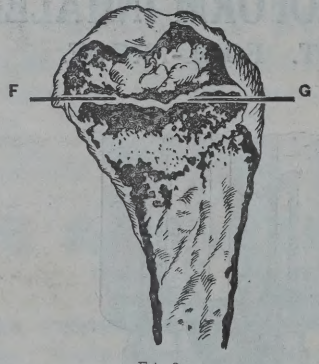

Fig 2

F—Epiphyseal-diaphyseal cartilage.
G—Calcification of provisional zone of cartilage.

Femur of rat fed for the same time as Fig. 1 on the same rickets-producing diet, but with the addition during the last three weeks of 0·01 c.c. of 'KEPLER' Cod Liver Oil each day. Healing is commencing and normal calcification of the provisional zone of cartilage is taking place, demonstrating the high Vitamin D content of 'KEPLER' Cod Liver Oil.

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